COMPUTERWORLD

Desktop users left thirsting for Java

By Frank Hayes and Kim S. Nash

Corporate developers are running into an unexpected problem with Java: user expectations.

The trouble with Sun Microsystems, Inc.'s hot development language for the Internet is that many users are only now discovering they can't run those spiffy new Java programs.

That's because more than 80% of desktops run Windows 3.1, DOS or the 680x0-based Macintosh operating system, and those systems can't run Java software. Java support for Windows 3.1 and the Macintosh is still months away, according to Netscape Communications Corp., Sun and IBM, all of which are working on the problem.

Netscape's popular Navigator Web browser does support Java on Microsoft Corp.'s Windows 95 and Windows NT, and on Unix systems from Sun, IBM, Hewlett-Packard Co., Digital Equipment Corp., Silicon Graphics, Inc. and other vendors. But the user reality is still Windows 3.1.

"We assumed everybody was going to go running over to Windows 95 and Windows NT, and it hasn't happened," said Michael Brando, an engineering manager at Perkin-Elmer Corp. in San Jose, Calif.

"Our users are still running Windows 3.1."

Since Sun officially released Java

Thirsting for Java, *page 117*

HP put on notice

Frustrated users demand assurances on HP 3000 plans

By Jaikumar Vijayan

There's rumbling in the ranks of the old faithful.

Frustrated by what they perceive as Hewlett-Packard Co.'s growing ambivalence toward the workhorse HP 3000 midrange platform, some users are seeking assurances from the company on the future of their investments.

In an unusual move, a special interest group for the 3000's proprietary MPE/IX operating system aired a wish list called Proposition 3000 at the recent HP Interex Programmer's Forum in San Jose, Calif.

Prolonged inaction on HP's part could "chill the flow of applications to the 3000 and

quell the growth of its customer base," warned "The 3000 News Wire," a newsletter in Austin, Texas, for HP 3000 users.

In the long term, HP's inaction could push users to look at alternatives from companies such as IBM and Sun Microsystems, Inc., said Ron Seybold, editor of the newsletter.

Proposition 3000 grew out of "the mixed messages with regard to the future of the 3000 that we

HP 3000, *page 16*

Here's the proposition

- Full 64-bit support for the MPE/IX operating system.
- Improved processor support, including a commitment to implement MPE/IX on the next-generation Intel/HP chip, code-named Merced.
- Reduced lead time on critical products for the MPE/IX.
- Common device drivers and hardware across HP 3000 and HP 9000, to make application porting to MPE/IX easier.

SILICON ALLEY: How New York became the cybercapital of the world. See In Depth, page 81.

Pseudo Programs'
JOSH HARRIS, one of the
big city's bright lights

Overnight services duke it out on-line

By Kim S. Nash

The World Wide Web is the latest battlefield for warring delivery companies FedEx and UPS, and their arsenal is a mix of intranet and electronic commerce applications.

At stake: kingship of top-to-bottom package scheduling, shipping and tracking via the Internet.

That's not hyperbole. The companies have vowed that everything a customer does today will soon be done on-line — and that their financial futures depend on it.

"We're fanatics about the Web. It's hyperimportant to us," said Robert Hamilton, manager of electronic marketing at FedEx Corp. in Memphis. The $9.4 billion company has a

long-range goal of generating 100% of its business on-line, though analysts say that will never happen.

No less adamant is United Parcel Service, Inc. "Our energy is the Internet. We know that's where we need to be," said Tom Hoffmann, manager of public network access development in the customer automation group at UPS in Mahwah, N.J.

Many of the on-line applications the firms have in the works aren't simple Web programs for interacting with customers. Nor are they strict, behind-the-firewall intranet applications.

They are complicated hybrids — public Internet/intranet systems — that few users have tried.

UPS' Tom Hoffmann:
'Our energy is the Internet. We know that's where we need to be.'

Web deliveries, *page 64*

Feds face year 2000 crisis

By Gary H. Anthes
WASHINGTON

Except for a handful of forward-looking agencies, the federal government is woefully unprepared for Jan. 1, 2000, when hundreds of computer systems are likely to fail — some of them catastrophically.

That was the candid assessment

Defense's Emmett Paige:
Additional funds aren't available to get job done

last week from witnesses who spoke before the first congressional hearing on the "year 2000 problem." Federal information systems managers and consultants outlined scenarios including miscalculated benefits payments, erased money transfers and spacecraft lost in space.

Gartner Group, Inc. in Stamford, Conn., estimated that the federal government will spend $1.10 per line of code to fix the date-change problem — about $30 billion overall. And on Jan. 1, 2000, 30% of its systems won't be year 2000-compliant, Gartner estimated.

Year 2000, *page 117*

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Inside Computerworld

April 22, 1996

Choice Cuts

Why is this man smiling? Find out how an on-line investment forum helped Dave Ronemus go from novice to high roller in less than a year.

Finance & Investing

See page 111

Addison Geary

Olympic hopefuls
The Summer Olympics will bring unparalleled IS network-ing and job opportunities to Atlanta. But for many, it won't be fun and games.

Careers

See page 89

News

Technical Sections

Features

Etc.

IS YOUR BACKUP TOUGH ENOUGH FOR THE JOB?

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Virtual tours

Virtual reality may seem too futuristic for corporate IS managers, but some of the commercial software has surprisingly practical uses. For example, an IS department could create a system that would let employees, customers or prospective customers take a virtual tour through places that would be difficult (or expensive) to visit in the real world. In this virtual world (right), which was designed with software tools from Superscape in Palo Alto, Calif., viewers tour the inner workings of a PC as part of their end-user training.

Product Development Systems in Seattle has introduced an Internet-based, virtual reality tour service for sales and marketing. The Virtual Tour Guide (left) takes viewers on an interactive walk through hotels, resorts, cruise ships, real estate and other environments. The technology is based on Apple's QuickTime VR software for Windows-based PCs and Macintoshes.

Digital snafus

Several Usenet postings report that Apple Performa 6300 computers switch on and off whenever someone nearby uses a Sony TV Remote Control Model RM-V21.

MCI officials say the company detected a programming error that overcharged customers of its automated, operator-assisted service. Press reports identified the problem, and MCI announced March 29 that it will refund about $40 million.

Netscape will fix a Navigator 2.0 bug related to daylight-saving time. Users who expect up-to-the-minute sports results and news from World Wide Web services are getting reports that are an hour old. The fix will be in Version 2.02.

Patent watch

These recently issued U.S. patents were gleaned from MicroPatent's Patent Server at http://www.micropat.com. (Number, inventor/assignee, date issued)

A computerized "fallacy detection" system. A user types in sentences that explain his beliefs about a subject. The software analyzes the sentences to detect any of 46 common "thinking errors," such as irrelevant facts and faulty logic. The system can be used for psychological counseling, self-analysis and employee management. It also can be used to check student papers for irrational claims. (5,503,561, Elliot D. Cohen, April 2)

A performer tracking system that can aim theater spotlights at performers moving on stage. The performer carries a wireless device, which sends ultrasound signals to receivers placed around the stage. The receivers calculate the Doppler shift and transmit the performer's position and velocity to an automated light controller. The controller uses that data to predict where the performer is going and calculates the required pan and tilt of the tracking lights. (5,504,477, Wybron, Inc., April 2)

■ **Send contributions of offbeat news, lists and anecdotes to mbetts@cw.com.**
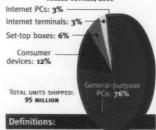
An "artificial nose" that sniffs out truffles better than a French pig has won a technology prize from the U.K. government. The AromaScanner records and measures smells digitally. It uses artificial intelligence to match the aromas to those in its memory and to learn new smells. The AromaScanner has already been used to help the coffee industry monitor the freshness of its coffee beans. The device is made by AromaScan in Crewe, England.

Internet access devices

Low-cost Internet PCs and terminals – now the subject of great hype – will have a tiny market niche in four years

PROJECTED WORLDWIDE UNITS OF INTERNET ACCESS DEVICES, 2000

Internet PCs: **3%**
Internet terminals: **3%**
Set-top boxes: **6%**
Consumer devices: **12%**

General-purpose PCs: **76%**

TOTAL UNITS SHIPPED: 95 MILLION

Definitions:

Consumer devices: Digital, interactive machines such as video-game players

Set-top boxes: TV signal decoders that access the Internet via cable TV

Internet terminals: Products designed by terminal vendors for Internet access

Internet PCs: Low-cost PCs (diskless or disk-limited) that are optimized for Internet access

Source: International Data Corp., Framingham, Mass.

News shorts

McAfee, Cheyenne Software bring takeover to court

McAfee Associates, Inc.'s $1 billion bid for network backup kingpin **Cheyenne Software, Inc.** is turning ugly.

Following a weeklong verbal slugfest, Cheyenne, in Roslyn Heights, N.Y., filed suit against McAfee, charging the Santa Clara, Calif., company with fraud under federal securities law. McAfee termed the suit an attempt by Cheyenne to distract shareholders from the bid.

But users, who have seen consolidation before in this market, seemed to be cheering for a merger that would produce some one-stop shopping.

"I think [the combination] would be good for users because we could get bundled pricing and deal with one company for support," said W. T. Guthrie, information systems supervisor at **Newport News Shipbuilding**, a division of Tenneco, Inc. in Newport News, Va.
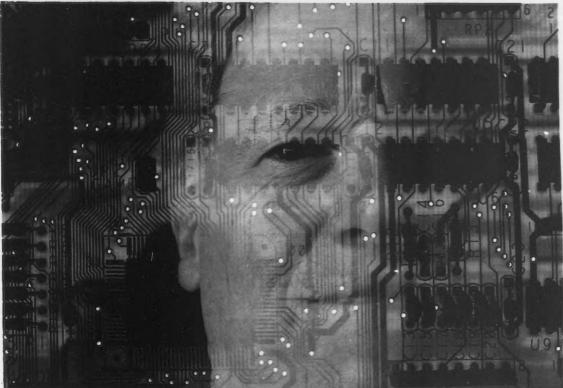
Human error trips up marathon computer chips

With a snazzy World Wide Web page by **Digital Equipment Corp.** and high-tech computer chips laced in to each runner's shoelaces, the 100th running of the Boston Marathon promised instantaneous race results posted on the Web. Alas, the official race results were unavailable because a programming contractor fell down on the job.

The unidentified contractor set up a distributed SQL server database, with one server in the scoring center and another in the press center. The snafu occurred in transferring the data from the timing center to the computer center in the press area due to "programming problems," according to Philip Gracefa, a spokesman for the Boston Athletic Association. "The chip program performed to our very high expectations, and Digital's network worked fine."

OS/2 Warp to use voice-activated interface

By Laura DiDio

IBM this week will score a coup against rival Microsoft Corp. when it delivers voice-enabled capabilities in the new version of OS/2 Warp, code-named Merlin.

The new features will give users the option of no longer using a keyboard and mouse, according to sources close to IBM.

Operating systems

"Users will be able to speak to their computers and navigate through pull-down menus and dialog boxes. Merlin will have a vocabulary of up to 20,000 words in the summer release," a source said.

Wally Casey, IBM's vice president of client product management for personal software products in Austin, Texas, declined to confirm the Merlin features.

Frank Dzubeck, president of Communications Network Architects, Inc., a Washington consul-

tancy, said the voice feature makes the Merlin release of OS/2 Warp "the first human-centric-enabled operating system."

"It dramatically increases user productivity. And it will have a ripple effect on other industries. I expect an awful lot of doctors will lose their carpal tunnel syndrome patients," Dzubeck added.

IBM will introduce Merlin at its Technical Interchange conference in Nashville this week.

Other Merlin features include the following:

● Support for Sun Microsystems, Inc.'s Java programming language.

● A built-in Internet browser.

● Integrated remote access capabilities.

● Support for Novell, Inc. NetWare and Microsoft Windows NT clients.

Merlin will also run Windows

applications natively via support for Windows application programming interfaces (API). And it will incorporate file caching and synchronization facilities to boost speed and performance.

Mike Conlon, director of resources at the University of Florida's College of Liberal Arts in Gainesville, was particularly enthused about Merlin's object-oriented technology.

But features and performance are only one part of the equation. Competing against the dominance of Microsoft's Windows 95 on the desktop is difficult, perhaps impossible, said Tom Kucharvy, president of Summit Strategies, Inc., a Boston consultancy.

"IBM should drop OS/2 Warp," Kucharvy said. "The future, par-

ticularly of desktops, is access to applications. IBM has had a real problem attracting [independent software vendors]. It just doesn't pay to write for the No. 3 desktop operating system."

OS/2 Warp at a glance
● Began shipping in 1987
● Was retooled in April 1992 to become a full 32-bit operating system
● 6 million copies were shipped last year
● Has an installed base of 13 million users
● IBM expects to ship about 8 million copies this year

Casey said IBM currently has "300 to 400" independent software vendors. By contrast, there are thousands of third-party applications available for the Windows environment.

But IBM has added developer API extensions that take Win-

dows 95 and execute the API as a native OS/2 call. "This lets [independent software vendors] quickly convert Windows 95 applications to OS/2 Warp applications," Casey said.

One such vendor is MGI Software Ltd. in Toronto, which makes Photo Suite, an advanced imaging and editing application. Sharon Manuel, the company's director of business development, said that by using IBM's developer API extension tool set, it took "one engineer just five days to get 85% of Photo Suite up and running on Merlin."

By contrast, she said, porting the application from Windows 3.1 to Windows 95 "took five engineers five months and the equivalent of 2½ years of manpower hours."

Going outside for data warehousing

IBM outsourcing service provides Internet-based access

By Thomas Hoffman
and Kim S. Nash

Call it data mining for the masses.

At next month's Internet World trade show in San Francisco, IBM will unveil an outsourcing service to handle data warehousing and analysis for companies that lack the money or expertise to develop decision-support systems on their own.

Under IBM's service, a retailer, for example, could transmit its point-of-sale data to an IBM server via the IBM Global Network or some other value-added network. Customers could access their sales data via the Internet using Netscape Communications Corp. browser software or other query tools, said Ben Barnes, general manager of IBM Worldwide Decision Support Solutions.

Barnes said pricing will be announced when the service becomes available this fall.

The idea of an outsourced data warehouse appealed to some information systems executives — especially if it gives medium-size companies the chance to exploit sales, marketing and other valuable data in ways that previously only their larger, well-heeled rivals could.

"I could see [IBM's service] serving a purpose to lower operational expenditures," said M. Lewis Temares, vice president of in-

Rick Diaz

M. Lewis Temares *of the University of Miami says companies could save money but may worry about others handling sensitive data*

formation resources at the University of Miami in Coral Gables, Fla. "Still, there's a trust factor in having someone else handling your proprietary data. That scares people like crazy."

Discount attraction

So long as users pay IBM less than they otherwise would have spent themselves on hardware, software and labor, the service should spark healthy interest, said Christine Ferrusi Ross, an analyst at Dataquest, Inc. in Westboro, Mass.

Labor costs are 22% to 33% of total data warehousing costs, said

Alan Paller, director of research at The Data Warehousing Institute, a Bethesda, Md., research group. "This is where the great computer utility in the sky can be very valuable," Paller said.

Smaller vendors such as Fiserv, Inc. in Brookfield, Wis., and Anchor Computing, Inc. in Farmingdale, N.Y., offer similar outsourcing services in the banking and retail markets. But IBM plans broader services and Internet access to the data.

SNA network management war continues on old fronts

By Patrick Dryden

While the two titans of legacy network management plot strategic direction, users keep making tactical decisions.

Two firms have dropped IBM's NetView for MVS for managing complex SNA networks in favor of Solve:Netmaster from Sterling Software, Inc. in Dallas. They cited the time-honored reasons of better features and savings — not the appeal of grand vendor plans for integrated management functions.

Legacy networks

"Netmaster requires fewer cycles to run, so we expect to save more than $600,000 over five years compared to NetView," said Henry Johnson, director for data center services operations at Lockheed Martin Corp. in Bethesda, Md.

Two of Lockheed Martin's data centers have adopted Solve:Netmaster, but a third will stick to NetView for MVS through the year, Johnson said.

For Atlanta-based Electrolux Corp., the choice was simple: The firm picked Sterling's Solve:Netmaster to get more functionality for less money, said Don Cruzan, manager of information systems.

From the central data center, Solve:Netmaster lets operators check any port on any controller to diagnose and resolve problems quickly, Cruzan said.

Meanwhile, IBM and Sterling continue to battle over vision statements.

"Since these two [vendors] offer the only real choices to manage the SNA world, their competition has been fierce for over a decade," said Frank Dzubeck, president of Communications Network Architects, Inc., a consultancy in Washington.

"They've waged war on speed, features and cost," he said. Dzubeck touts IBM's move to merge all its NetView and SystemView tools with the distributed Tivoli Management Environment from recent acquisition Tivoli Systems, Inc.

"IBM may cover a great deal more platforms to help users automate management functions throughout heterogeneous networks, while Sterling remains focused on the data center," Dzubeck said.

But Sterling already delivers much of what IBM can only promise today, said Paul Mason, director of the enterprise systems management program at International Data Corp., a market research firm in Framingham, Mass.

"The Netmaster SNA manager is part of the Solve suite that integrates reasonably well for an enterprisewide solution. It's at least a year or two ahead of IBM's Tivoli initiative," he said.

Paperless paper selling is near

'net-based trading site must still use hard copy, though

By Mitch Wagner

In a pioneering use of the Internet for hard-core business-to-business applications, a paper brokerage has launched a "virtual trading floor" designed to sell industrial quantities on-line.

The Paper Site caters to brokers who buy paper by the ton and sell it to one another and to printers of magazines, books and so on. The site went on-line early last month at http://www.paper site.com. With seven subscribing brokers, it certainly isn't a threat to the Chicago Commodity Exchange.

"It's a little bit like selling the first fax machine," said Matthew Steele, co-founder and systems developer at The Paper Site. "You've got a fax machine, but who are you going to fax to?"

Still, while pundits talk about the Internet's future for business-to-business trading, The Paper Site is doing it. And that's rare on the Internet, where commerce is still limited mostly to advertising, marketing, customer support and a smattering of consumer sales.

Matthew Steele, *co-founder and systems developer at The Paper Site, says the key to selling traders on the new 'virtual trading floor' is convincing them they will gain an advantage by using it*

can also read and post lists of what they are selling and what they would like to buy from others.

Data security has been a big obstacle to on-line commerce. The Paper Site sidesteps that problem: Bids are placed on-line, but they are confirmed through telephone calls, hard copies of purchase orders and occasional face-to-face meetings.

The company has about a half-dozen employees. It was started in December by Steele and Siri Vedya Singh, owner of Presidio Paper Co., a San Francisco brokerage.

Steele does the traditional information systems work, along with sales and marketing. Such broad duties are partly because of The Paper Site's small size.

But they are also part of the nature of doing business on-line, Steele said. On-line entrepreneurs need to have a hands-on familiarity with the hardware and software used in the business as well as the ability to sell that functionality to customers who might be computer illiterate.

"Customers want to know how access to this technology will be

Paper Site subscribers, who pay $250 per month, can read news and discussion databases about the paper industry. They

an advantage to them," Steele said. "They want to know why they need to be involved in this stuff. In layman's terms, how does it work? How will it work for them?"

A wider audience

One person who has been sold on The Paper Site is Greg Duerr, president of Milltown Paper, Inc., a brokerage in Appleton, Wis. "I'm very excited about using this thing," Duerr said. "I can put my list of materials out to a much broader group of prospective customers than before."

Duerr said Milltown Paper faxes materials lists to customers via computer and group faxing. But the company is limited to faxing lists to "the people we know or we have some contact with," he said.

The site runs on an Apple Computer, Inc. Power Macintosh 6100 using WebCatalog software from Pacific Coast Software, Inc. in San Diego.

"I checked out Oracle, Sybase and every other thing that would work as a Web database; [Web-Catalog] is by far the fastest thing I've found," Steele said.

News Shorts

Replicating Notes on the Web

Lotus Development Corp. is coming clean about its plans to bring Notes replication to the World Wide Web. Notes creator Ray Ozzie recently acknowledged that Lotus is considering ways to bring Notes' vaunted replication technology to the Web, which would make the Internet a more viable place for mission-critical business applications. But there are no specific plans yet, officials at the Cambridge, Mass., firm said.

Cisco plugs ATM alternative

As expected, **Cisco Systems, Inc.** last week formally announced NetFlow Switching, which will give users ATM-like switching benefits without a painful upgrade to Asynchronous Transfer Mode (ATM). Users can move to NetFlow Switching by simply upgrading software on their high-end routers to support the new switching scheme. The $5,000 upgrade for Cisco's high-end 7000 and 7500 routers will be available by July. The router market leader will support NetFlow Switching on its midrange routers in the third quarter.

Pyramid builds new program

Pyramid Technology Corp. is launching a program for companies interested in combining transaction processing and data warehousing on one platform. As part of the Smart Transactions program, Pyramid will recommend a custom-designed system built around Pyramid's products, such as the RM1000 Cluster Server or the Nile 150 family of servers. The cost of getting a system designed and implemented ranges from $15,000 to $3 million, according to Pyramid officials.

Owens-Illinois, SSA settle

Owens-Illinois, Inc. and Chicago software vendor **System Software Associates, Inc.** (SSA) have settled lawsuits they filed against each other, according to a joint statement issued late last week by the two companies. And in an about-face, the $3.7 billion packaging giant is implementing SSA's client/server software at one of its divisions. The settlement comes five months after Owens-Illinois charged SSA with fraud and deceptive business practices.

No slowdown for Microsoft

Despite a generally weak PC market, **Microsoft Corp.** posted a 42% increase in third-quarter earnings, compared with the same period last year. Profits for the quarter were $562 million, up from $396 million last year, exceeding analysts' predictions. Revenue for the quarter was up 39% to $2.2 billion. Company officials attributed the strong quarter to the success of Windows 95, which they estimate is installed on 70% of all new PCs being sold. (For other earnings results, see page 32.)

They earned it

Smith Barney, Inc. and its parent company, **Travelers Group**, signed a $170 million contract with Microsoft and Compaq Computer Corp. for computers and software. The contract calls for 500 servers and 20,000 desktop PCs running Microsoft's Back-Office and Windows NT.

OMG adopts OLE/CORBA

After nearly two years of work, the **Object Management Group** (OMG) has officially adopted a standard way to connect Windows applications to object middleware that conforms to the OMG's Common Object Request Broker Architecture (CORBA). The new interface, which Microsoft supports, guarantees that components based on Microsoft's OLE system will be able to communicate with CORBA-based object systems.

I/Pro enhances Web tool

I/Pro Corp. in San Francisco plans to expand its service for monitoring traffic on Web sites so users can compare traffic on their sites to Web averages.

Moore snares DEC CIO

Robert E. McNulty has been named vice president and chief information officer at **Moore Corp.**, a Toronto-based business forms company. McNulty joins Moore from Digital Equipment Corp., where he was vice president, managing director of outsourcing services and CIO.

CA to embed Web technology

Computer Associates International, Inc. next month plans to embed **Spyglass, Inc.'s** Web server technology in every copy of its OpenIngres/Ice database.

Symantec rolls out spin-off

Symantec Corp. is spinning off its Enterprise Developer client/server development system. The new venture, dubbed InterMax Solutions, Inc., is a partnership between Cupertino, Calif.-based Symantec and consulting firm DBSS, Inc. in San Mateo, Calif.

Chipcom hub users welcome 3Com switching

By Bob Wallace

In its largest product announcement since it acquired Chipcom Corp. last summer, 3Com Corp. this week will begin a LAN switching rollout aimed at appeasing Chipcom users clamoring for more and cheaper switching.

Since the merger, key Chipcom users have pressed 3Com for more efficient and cheaper LAN switching wares for Chipcom hubs. So far, they have seen 3Com pump out only a handful of Asynchronous Transfer Mode products.

In the next three weeks, 3Com will release new Ethernet, 10/100M and 100M bit/sec. Ethernet, Token Ring and Fiber Distributed Data Interface switching modules for Chipcom's highest-end Oncore switching hub, code-named LightSpeed. Together, they represent 3Com's biggest commitment to the Chipcom switches.

"All I can say is, 'Bring them on,'" said Alan Robson, director of MIS at Val-Pak Distributing, Inc. in Largo, Fla. "We've been waiting for affordable Ethernet switching and had been using an older Chipcom switch in the interim.

"I was skeptical initially about what plans 3Com had for switching in the Chipcom hubs," Robson said. "Now, I'm very pleasantly surprised by the resources committed to revamping the Chipcom switching hub line, he said.

> 3Com will roll out new Ethernet, 10/100M and 100M bit/sec. Ethernet, Token Ring and FDDI switching modules for Oncore hubs.

Val-Pak has used Ethernet switching to split up large workgroups and give Macintoshes access to servers that run graphics applications. Now, the distributor will replace them with Chipcom switches equipped with the modules, Robson said.

Analysts said it is about time Santa Clara, Calif.-based 3Com moved its switching into the Chipcom hubs, which were known for their more expensive switching gear and weren't as wide-ranging as those from rival Cabletron Systems, Inc. The new products will keep 3Com on the switching hub forefront with Cabletron, slightly ahead of Cisco Systems, Inc. and a good distance in front of Bay Networks, Inc.

Before the merger, Chipcom developed Ethernet and Token Ring switching for its hubs, largely in partnership with IBM. But Gordon Saussy, vice president of marketing at 3Com's Integrated Systems Division, said the new products "will be more efficient and scalable and lower in cost." He added that one of the new products would drive the price of Ethernet switching to the desktop down to less than $300 per port.

The Ethernet and Fast Ethernet modules will be based on Brasica, an application-specific integrated circuit (ASIC) from 3Com. Other modules will be based on ASIC work started by Chipcom and continued by 3Com after the merger.

And in the increasingly overcrowded remote access field, 3Com this week will roll out AccessBuilder 400, a low-end remote access system that supports Integrated Services Digital Network (ISDN). The product is available in two models: one for users looking for LAN access and a second designed for the quickly expanding legion of Internet services providers interested in providing ISDN access to the Internet.

Also due from 3Com is a high-powered remote access system, dubbed the 5000, for central sites. Sources said the box will have a switching backplane, which will give it high capacity, and a wide array of wide-area networking modules.

The 5000 is said to be based largely on technology developed by Primary Access Corp., a leading maker of high-end remote access products in the U.S. 3Com acquired Primary Access last year.

Protocol to direct traffic on 'net

Apps to reserve bandwidth; standard expected in a few weeks

By Bob Wallace

User applications will soon be able to RSVP needed bandwidth and level of service on the Internet, thanks to a pending protocol specification.

The Resource Reservation Protocol (RSVP) was designed to be the Internet version of calling a restaurant and making a dinner reservation. Of course, as they would for any restaurant dish, users can probably expect to pay for the privilege.

Internet service providers would use RSVP to provide different levels of service for which users would be charged. That would be akin to the way carriers do business with voice and data services today.

RSVP is an open specification that already enjoys industrywide support (see chart). But now, for the first time, it lets user applications reserve bandwidth and lock

in service for voice, data and video traffic that will be sent over the Internet. The Internet Engineering Task Force is expected to approve the now-mature RSVP as a standard in a few weeks.

"RSVP would go an awful long

Resource Reservation Protocol (RSVP)

WHAT IT IS: A protocol to let user applications reserve bandwidth and lock in a quality of service for voice, data and video traffic sent over the Internet

COMPOSED OF: Software for routers and applications

STATUS: Due to be approved as a standard in a few weeks

KEY BACKERS: Cisco, Bay Networks, Intel, Sun, Silicon Graphics and Starlight Networks

SOME VENDORS' RSVP PLANS: Cisco plans to ship RSVP as a free upgrade to its router software in September and expects Internet service providers to deploy the technology throughout their networks beginning early next year. Bay will offer RSVP as a free upgrade in January 1997.

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way toward adding commercial potential to the Internet," remarked Jim Fay, director of strategic technology at PMI Mortgage Corp., a San Francisco mortgage insurance provider. "We're looking at automating transactions

with trading partners which require a specific turnaround time. We can't commit to get things done in, say, under two minutes, unless we have a solid bandwidth reservation and commitment."

Today, every packet that enters the Internet is treated equally, which is a problem for the many users who want it to handle time-critical file transfers and delay-sensitive voice and video traffic.

"This ... presents a big problem for users that need performance assurances for their traffic," said Larry Landweber, former president of the Internet Society and current chairman of the society's board of trustees.

He explained that users want voice and video to be treated differently from simple data files, which can often be retransmitted without any major performance problems.

Implementing the technology in applications and high-performance routers is the easy part, Landweber stressed. "Users' abili-

ty to get bandwidth where and when they want it depends on a number of factors, including when they make a reservation, where they need to send traffic, who owns the route, contracts that [Internet service providers] have with each other and the contracts they have with users."

Several users expressed interest in RSVP, but one said it is too early to tell how Internet providers will offer RSVP-based services. Other users echoed Fay's enthusiasm.

"The idea sounds fantastic because the 'net is getting slower and slower, and there are no guarantees performance-wise," said Steve Flis, network manager at MetroWest Medical Center in Framingham, Mass. "Running more and more types of traffic over the 'net is becoming very popular, but it remains to be seen what router vendors and [Internet service providers] will charge for RSVP functionality such as guaranteed bandwidth. I can't believe either would give it away."

Standard attacks mix of on-line payment schemes

By Mitch Wagner

A pair of influential Internet consortia last week unveiled a standard that would make it easier for users to install multiple electronic payment packages on their systems.

The proliferation of 35 incompatible electronic payment schemes has stifled electronic commerce the same way the split between Beta and VHS standards stifled growth in the first days of video, according to the World Wide Web Consortium (W3C), one of the bodies involved in the new development.

Currently, individual merchants face the unappealing option of either picking one standard — and alienating the consumers not subscribing to that standard — or supporting multiple standards, which entails additional time, effort and money.

The Joint Electronic Payments Initiative (JEPI) doesn't unite the incompatible standards, but it at least makes it possible for vendors and users to more easily support multiple software packages.

JEPI is a uniform application programming interface set designed to speed the installation and configuration of payment software on Web servers and brows-

ers such as Netscape Communications Corp.'s Navigator or Microsoft Corp.'s Explorer.

"In theory, this would simplify the work that IS managers [currently] have to do to manually wrangle different payment systems and streamline communications," said Scott Smith, an analyst at Jupiter Communications in New York. "Anything you can do to lower that hurdle is better."

The way on-line payments work now, users install client software packages, sometimes known as "electronic wallets," on their browsers. This software then communicates with "electronic cash registers" that run on merchants' Web servers. Each vendor's client works with only that vendor's own server software.

Wrong problem

Ed Van Herik, a home page editor for San Diego Power & Light Co., said JEPI seems to be designed to solve the wrong problem. What worries firms most about on-line sales isn't competing standards, he said. It is security.

"Many companies, including ours, are champing at the bit to take the next step with Web sites and offer sales to create a total on-line market," Van Herik said. "Until that issue is resolved, that's the

main barrier."

But, Rohit Khare, a member of the technical staff at the consortium, said the payment-processing software packages include encryption features designed to enhance security. The JEPI standard should make it easier to use those packages. JEPI was developed by W3C, a Cambridge, Mass., technical group that develops standards for the Web, in conjunction with CommerceNet, an alliance of 140 vendors and users doing business on the Internet.

On-line shopping spree

On-line revenue

1994	1995	1996	1997	1998
$251M	$576M	$1.25B*	$2.33B*	$3.78B*

*Projected

Source: Jupiter Communications, Inc., New York

IBM improves versatility of DB2

By Dan Richman
and Michael Fitzgerald

Version 3.0 of IBM's nonmainframe DB2 relational database management system will include built-in support for nontraditional data and hundreds of processors. It will be released simultaneously on at least seven platforms.

Janet Perna, IBM's director of database technology, gave early details of the forthcoming release last week at DB/Expo '96 in San Francisco. Users and analysts reacted positively to the sketchy details. Version 3.0 will enter beta testing in the fourth quarter and will likely ship by mid-1997.

Common Server is the name IBM has given to DB2 systems other than its midrange and mainframe platforms. It highlights a

theme that IBM will build on in Version 3.0: a common code base for all Unix or desktop platforms.

IBM has been criticized for its staggered release schedule on those platforms and for offering implementations that vary in capability depending on the operating system. Version 3.0 will be released simultaneously on Solaris, HP-UX, Sinix, SCO Unix, AIX, OS/2 and Windows NT.

"IBM is on a roll with DB2, and its growth is a direct result of moving from supporting only OS/2 and AIX to supporting other Unix platforms," said Dan Kusnetzky, an analyst at International Data Corp. in Framingham, Mass. "Simultaneous release on several non-IBM platforms can only help that growth."
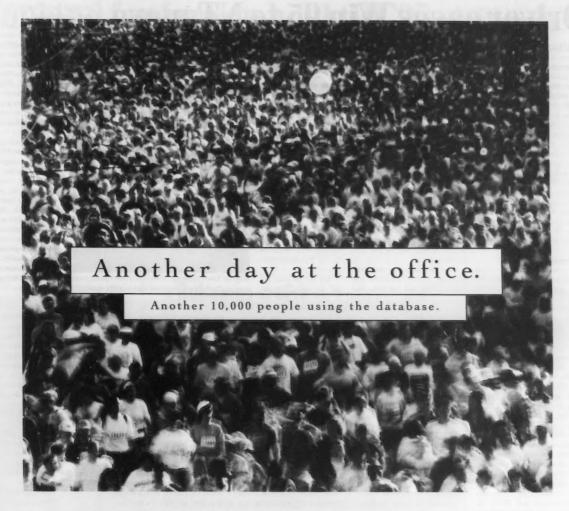
Version 3.0 of Common Server

will contain built-in capabilities for dealing with text, audio, image, video and fingerprints, Perna said. Users of Version 2.0 — which is known as DB2/2 — have to order a separate add-on module to deal with each of these nontraditional types of data. These add-ons are due by Aug. 1.

The new version will also be able to deal with spatial and time-series data, for which DB2/2 add-ons won't be available.

Bryan Knox, president of Voice I/S, Inc. in Dallas, uses extensions to put voice, text and images into the firm's DB2-based product. If the extensions were integrated into DB2, they might be easier to install and administer, Knox said. They couldn't be any cheaper, however, because they are already free, he noted.

Driver eases Win 95 to NT move

Manual reinstallation a chore for some

By Laura DiDio

A new driver for Microsoft Windows will alleviate many, although not all, of users' woes when migrating from Windows 95 to Windows NT Workstation.

Jonathan Roberts, director of product management for Windows 95 and NT Workstation, said users won't be able to fully automate the upgrade from Windows 95 to NT Workstation until Microsoft Corp. ships Cairo — the next major release of NT Workstation — next year.

Still, a new version of Microsoft Driver Model will automatically fix much of the problem.

Different registries

Users currently must reinstall their desktop software manually when they upgrade from Windows 95 to NT Workstation. That's because of differences in the baseline code of the registries for the two operating systems — a problem Microsoft first announced two years ago when it began beta-testing Windows 95.

But manual installations can take hours or even days longer than automatic software upgrades, according to Tom Kucharvy, president of Summit Strategies, Inc., a consulting firm in Boston.

Roberts acknowledged that the reinstallation issue is serious. But he claims it affects only a very small subset of the Windows installed base. "We know that having to reinstall applications from scratch is painful for users, but few businesses are likely to switch operating systems twice in

one year," Roberts said. So, users who installed Windows 95 when it became available in August aren't likely to switch to NT Workstation anytime soon.

Analysts and several Windows users agreed the installation issue affects only a small portion of Microsoft's installed base. Some users, such as Marek Piekarski, vice president of information systems at Edison Parking, Inc. in Newark, N.J., skipped Windows 95 altogether and will wait for NT Workstation 4.0 to ship.

"For us, it was a no-brainer. We simply decided, why waste time with Windows 95? We're going straight from Windows for Workgroups to Windows NT 4.0," Piekarski said.

Steve Sommer, vice president of IS at Hughes, Hubbard and Reed, a New York law firm, said

that although "Microsoft defaulted a bit [on the installation discrepancies], it's generally a good idea" for businesses to sometimes totally reinstall software when they upgrade their operating systems.

"Total software reinstalls are a pain, but you get to check all the workings of your system so there are no surprises later," Sommer said.

Henry Eckstein, MIS director at York Claims Services, Inc., a nationwide claims administrator in New York, said his firm will avoid incompatibility problems by sticking with Windows 95 for the foreseeable future.

"It's not an issue for us," he said. "The mi-

gration from Windows for Workgroups to Windows 95 was fairly easy. Why go looking for trouble when there's currently no real

Hughes' Steve Sommer: 'Reinstalls are a pain, but you get to check all the workings of your system'

pressure for us to go to NT Workstation right now?"

Users who are experiencing the pain of migration should accept partial responsibility, Kucharvy said. "It's caveat emptor. Microsoft was up front about the incompatibilities in the Windows 95 and NT [Workstation] registries. And there's always a certain level of pain involved with OS upgrades anyway," he said.

Microsoft has provided a little relief for users who want to migrate to NT Workstation right away.

The company recently released a new Windows Driver Model, which contains a common 32-bit driver model designed to simplify driver development and improve quality. The new driver model works on Windows 95 and NT Workstation.

Play it safe — reinstall

Developers who bent over backward to meet Microsoft's strict criteria for Windows 95 and NT compliance are hearing bad news from users.

Users say they are going through contortions to get their already installed 32-bit Windows 95 software to run on NT without having to reinstall every application.

"It's a serious concern and a painful issue for a very small subset of our customer base," acknowledged Jonathan Rob-

erts, director of product management for Windows 95 and NT Workstation at Microsoft.

Microsoft has taken several interim measures to ease users' migration woes (see story above). A permanent fix is "in the works," according to Roberts, but the problem won't be totally solved until Microsoft releases Cairo, the next generation of Windows NT, next year. The migration problems occur because Windows 95 and NT Workstation have different registries. And Windows 95 con-

tains several features that NT Workstation doesn't, such as Plug and Play and power management. "We won't align the registries until Cairo," Roberts said. Meanwhile, he said, Microsoft has released a Windows Driver Model designed to to simplify driver development and improve quality.

"We do have to establish clear guidelines for [independent software vendors] on how to write the applications to avoid this in the future. This is Microsoft's responsibility, and we dropped the ball a bit," Roberts said. "We had a dictum that in order to be certified, [independent software vendors] had to create applica-

tions that run on NT Workstation and Windows 95, but we didn't provide [them] with the necessary instructions on how to install applications on both systems without requiring reinstallation."

One Windows developer, Vadim Yasinovsky, president of Clear Software, Inc. in Newton, Mass., advised users to always reinstall applications from scratch. "By the time you [fix] all the small things that need to be readjusted from the migration, you haven't really saved any more time than reinstalling from scratch," he said.

*— Lisa Picarille
and Laura DiDio*

IBM tries to sell users on spruced-up AS/400

By Michael Goldberg
SAN FRANCISCO

Aging, clunky and proprietary. With those three mindshare strikes against the AS/400, IBM executives at the Common user group meeting here last week strived to convince customers otherwise.

One upcoming change they emphasized was the June release of Version 3, Release 2 of OS/400, the AS/400 operating system.

With this release for CISC models of the AS/400, the server will be able to support Lotus Development Corp.'s Notes and Windows 95 PCs for client/server applica-

tions and systems management functions.

In addition, software to translate AS/400 data streams to Hypertext Markup Language in real time will make AS/400-based applications ready for the World Wide Web, IBM officials said. OS/400 Version 3, Release 7, with the same features as Release 2 for newer PowerPC-based AS/400 models, is due by year's end.

Along with these moves, officials cited others designed to give the AS/400 a fighting chance against Unix and Microsoft Corp.'s Windows NT servers. They include the following:

● New data mining applications, which are due late this year.
● Plans to improve the symmetrical multiprocessing scalability of the AS/400, from four CMOS processors now to eight next year.
  ● A promise of future support for Java applets.
    "The AS/400 would be a good Web server. That's very interesting to us," said Avery Levy, chief information officer at National Envelope Corp. in New York. "We'd like to hook into our customers and have more support with them through the Internet."

Levy said his information systems staff is looking at Windows

Servers

NT as a potential server operating system for some functions at his company. But he said he likes what IBM is doing for the AS/400, a system his company has used since 1990.

IBM's release this past December of PowerPC-based AS/400 models brought it back into competition with servers such as Hewlett-Packard Co.'s Unix models, although it still lags behind AlphaServers from Digital Equipment Corp., said Thomas Bittman, an analyst at Gartner Group, Inc. in Stamford, Conn.

To sustain its long-term future, however, IBM needs to give the AS/400 family a higher market

profile. Specifically, it needs to win new customers and attract leading software vendors to the AS/400 at a time when they are busy examining opportunities with Windows NT, Bittman said. A recent announcement that SAP AG is porting its R/3 suite to the AS/400 was a boost, he said.

IBM's pledge to get Notes support on the AS/400 will ease the path of users who now have to replicate their data on a separate Notes server, said Parke Cummins, an IS consultant at Crowe, Chizek & Co. in South Bend, Ind. "Groupware and the AS/400 are very complementary. [IBM] is right on target," he said.

Copland fanfare on hold till '97

By Lisa Picarille

Apple Computer, Inc. last week topped off a week of losses and planned layoffs by confirming long-standing predictions that the Copland operating system will be late.

As expected, Copland — the much-ballyhooed next-generation Macintosh operating system from Apple in Cupertino, Calif. — won't be out this year as promised. Instead, Gilbert Amelio, Apple's chairman and CEO, said it will be "a 1997 event."

He declined to give a specific ship date and noted only the need for more testing to ensure the stability of the operating system.

Copland, the next major iteration of the Mac OS, was promised with a features set that would include a microkernel, a customizable interface, revamped file management, advanced search capabilities and support for Internet messaging protocols and OpenDoc.

Late delivery of Copland, which has been under development for three years, may turn into a nonevent for users. Some of the improvements originally slated for Copland, such as built-in Internet access and revamped file management, will instead be incorporated in a series of incremental upgrades to System 7.5, according to Amelio.

Still, in light of Apple's recent spate of problems, including layoffs affecting 1,500 workers and a $740 million loss for its second fiscal quarter (see related story, page 32), some Macintosh users weren't very forgiving of Apple's latest misstep.

John Papa of The Carson Group: 'I'd rather have them get it right than roll out something that was rushed to market'

"Copland should be a top priority, and not getting it out on time tells me that isn't the case," complained an information systems manager at a large Northeast manufacturer who asked not to be named. "Every day that Copland is late, Apple is losing users to the Wintel platform."

"All this hysterical gloom and doom [on the part of the media] makes it hard for me to keep management at bay," said Greg Chirichigno, a Macintosh manager at Lockheed Martin Missile and Space in Sunnyvale, Calif., which has 9,000 Macintoshes.

"[But] if they follow through and do incremental updates while fixing other problems, like providing true multitasking and memory protection, then I think this is a good way to handle things," he said.

John Papa, a partner at The Carson Group, a financial services firm in New York, agreed. "I'd rather have them get it right than roll out something that was rushed to market. Meantime, I'll try to take advantage of the new Mac OS pieces they do release," he said.

The decision to roll some Copland features into System 7.5 upgrades undoubtedly will steal some of the much-needed thunder Apple hoped Copland would generate, which in turn was expected to help boost sagging market share. During the past quarter, Apple's share of the U.S. PC market dropped to 9.5%, compared with 11.1% for the same period last year, according to Computer Intelligence InfoCorp in La Jolla, Calif.

Amelio plans to outline his plan to restore Apple to profitability at next month's Apple Worldwide Developer Conference in San Jose, Calif. He said last week that Apple's future direction is to capitalize on the Internet and the convergence of communications, computing and multimedia.

SAP officials: Don't close lid on R/3 just yet

Vendor commits to flagship product, quashes analyst claims

By Julia King

Reports of the imminent death of SAP AG's R/3 client/server software are greatly exaggerated.

That was the message SAP executives hammered out repeatedly last week in the wake of a Forrester Research, Inc. report and resulting rumors that the vendor's flagship R/3 product is headed for the software boneyard.

"We are absolutely committed to R/3 and that users will have a smooth upgrade path" to any new R/3 functionality currently under development, said Paul Wahl, chairman of SAP America, Inc., a division of SAP AG in Philadelphia.

Users will "absolutely not" have to discard current R/3 systems to use electronic commerce and other network-based applications, Wahl insisted.

But according to the Forrester report, SAP is working on an entirely new object-based version of R/3, which will render obsolete the complex and highly integrated R/3 version that legions of users are now installing.

Forrester said the report is based on hundreds of interviews with SAP executives, software developers, implementation partners and customers.

"What we're saying is that R/3 is a legacy system going in," said Bobby Cameron, director of packaged applications research at the Cambridge, Mass., research firm.

Safety chute

"There is no way — zero way — for SAP to migrate its monolithic application to a distributed [object-based] application. The architecture has to be radically different," he said. As a result, Forrester warned users to "keep the R/3 exit option open."

Last week, several of SAP's largest U.S. customers said they were unaware of any major changes in the R/3 architecture.

"SAP is continually issuing updates to R/3, but there is nothing we've seen that would obsolete the [current] R/3 product," said Bob Rubin, vice president of information services at Elf Atochem North America, Inc. in Philadelphia.

Information systems managers at Monsanto Corp., a large R/3 site in St. Louis, agreed.

"Just two weeks ago, we talked to SAP about their development plans out to 1997, and it was all about incremental development. There was not even a hint of discontinuity," said Gary Banks, director of Monsanto's center for technical excellence.

On the other hand, "I've always just assumed there is somebody working on the next generation," Banks added.

"We have no illusions that we'll install the system and then have it sit for 10 years," he said.

The technology is shifting from traditional client/server systems to software objects and network-based applets developed in non-proprietary languages such as Sun Microsystems, Inc.'s Java. R/3, by contrast, is built in ABAP/4, a proprietary language.

As a result, vendors of integrated enterprise software are working to make their products more flexible, said Vinnie Mirchandani, an analyst at Gartner Group, Inc. in Stamford, Conn.

"Baan Co. and Oracle Corp. face the same issues," Mirchandani noted.

"So I'd be surprised if SAP didn't have a secret project looking at these issues. But announcing it would only work to scare current customers," he said.

Bob Rubin of Elf Atochem, *one of SAP's largest R/3 sites, says he is unaware of any major changes to the structure of R/3*

HP packs help desk features in AssetView

By Thomas Hoffman

Hewlett-Packard Co. this week will introduce a software package designed to keep you from falling on your assets.

HP's AssetView asset management tool kit stores up to 400 pieces of information on PCs, printers, minicomputers, software licenses and other enterprise technology items.

Industry analysts said Asset-View is one of the most comprehensive packages on the market, compared with other packages such as AssetPro from Ottawa-based Asset Software International Corp.

Fills need

One key feature is its ability to let help desk managers drill down on maintenance histories, lease information and equipment amortization while handling trouble tickets.

"We're in desperate need of a product that can bridge asset discovery, asset management and help desk functions," said Jeff Kent, vice president of distributed computing and communications at Huntington Service Co., a Columbus, Ohio, unit of Huntington Bancshares, Inc.

Huntington recently began using Novadigm, Inc.'s Enterprise Desktop Manager primarily for desktop software distribution and PC tracking capabilities, Kent said. But bank officials are interested in finding a more comprehensive product such as HP's AssetView, he added.

Rob Restivo, a project manager at TRW Information Systems & Services in Allen, Texas, expressed interest in HP's AssetView because other packages he has looked at don't handle asset management and procurement. "We'd want something that covers the gamut," Restivo said.

Harold Harrington, senior MIS purchasing specialist at Belk Stores Services, Inc., said he is impressed that Palo Alto, Calif.-based HP has unbundled Asset-View from its asset management services, a move analysts also applauded.

But the Charlotte, N.C., fashion retailer will probably stick with Comdisco, Inc.'s Class, at least for the short term, Harrington said.

"We might be interested in the HP product a year from now when our Class contract runs out," he said.

HP's AssetView software runs on HP Unix workstations, Macintoshes and PCs running Microsoft Corp.'s Windows, Windows NT, MS-DOS and IBM's OS/2.

Pricing starts at $22,000 per user, with add-on data collection tools at $10 per node.

> **"We're in desperate need of a product that can bridge asset discovery, asset management and help desk functions."**
>
> — Jeff Kent, Huntington Service Co.

HP 3000

have been getting from HP," said Jeff Kell, director of technical services at the University of Tennessee in Chattanooga.

For instance, HP has backed away from giving any kind of firm commitment to earlier statements that it would implement the next-generation Intel Corp./HP chip in the 3000 line, he said.

Similarly, HP has been vague on things such as its schedule for full 64-bit support for the MPE/iX operating system and has been slow to implement host-based telnet support on the 3000, observers said.

HP's emphasis on its highly successful 9000 Unix server family has been blamed for a widening performance gap between the 3000 and the 9000 families.

Midrange servers

"What we are concerned about is the apparent disproportion of market resources and mind share that HP seems to be putting into its Unix lines," said Tony Furnivall, president of SDL/Software, Inc. in Buffalo, N.Y.

"It appears like we are the red-haired stepchild of the whole family. A lot of the sales force in particular seems to deny the existence of the 3000 altogether," Kell said.

Company assurances

HP last week defended its HP 3000 strategy and said it would continue to protect users of the 20-year-old platform.

But Harry Sterling, general manager of HP's commercial systems division, conceded that "from a business point of view, we make our investment decisions very differently for the Unix side and the 3000."

As a result, "sometimes we don't always have the same applications and the peripherals running on the HP 3000 that we have on the Unix side," he said.

Sterling insisted that HP will continue to respond to customer input and said the company will provide 64-bit support for MPE/iX. But Sterling wouldn't provide a time frame for integration of the next-generation Intel/HP chip.

Because HP generated almost $600 million in profit on revenue of $1.2 billion for the 3000 series last year, according to an estimate by Aberdeen Group, Inc. in Boston, users are confident the company will continue to support the platform.

"I am not at all concerned that the HP 3000 is all of a sudden going to die. It would be extremely foolhardy of HP to take this group and simply cast them aside," said Brad White, chief information officer and worldwide director of Spalding Sports Worldwide in Chicopee, Mass.

"SAS software is a driving force in understanding business data."

When you're the largest independent retailer of gasoline in the U.S., with over 2500 stores and annual sales topping $3.5 billion, one small change in fuel prices can have a big impact on the bottom line. That's why Circle K Corporation's Petroleum Products and Services Division turns to the SAS System.

"Its analytical capabilities, ease of use, and ability to handle large amounts of data put it above and beyond other software," says Mary Niles, Petroleum Systems Analyst for the division.

Fitting Circle K's Information Needs to the Letter

Circle K's business analysts say SAS software has meant tremendous time savings in day-to-day business tasks. According to Dianne Hurley, Director of Petroleum Pricing and Ordering for the division, "SAS software lets us forge forward with our data, enabling us to create pricing models, volume predictors, and budgets in record time. This, in turn, lets us make decisions much more quickly."

Data regarding gasoline pricing is gathered into GMARD—short for Gasoline Marketing Analysis Relational Database—a system built with SAS software. From there, the data is transformed into meaningful business information for executives throughout the Petroleum Products and Services Division. Niles says, "The software lets

Dianne Hurley and Mary Niles of the Circle K Corporation.

us easily add other applications and functionality." Now in development is a SAS-based EIS for non-technical executives. "It's a big goal of ours to provide executive information systems that allow people at the top to quickly and easily view data and make good business decisions. To them, a picture is worth a thousand words," adds Hurley.

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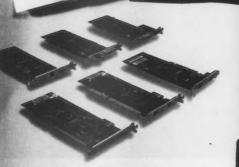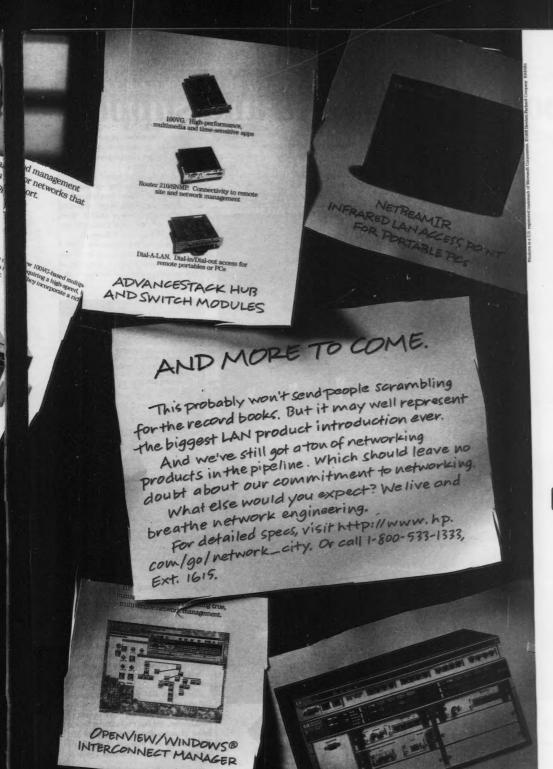
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10BASE-T HUBS

Sun spotlights servers and support

By Melissa Bane
NEW YORK CITY

"Mission-critical" isn't just a buzzword for Chris Huntley, a senior operations analyst at Consolidated Rail Corp. in Philadelphia.

"If we don't keep our system up 24 hours, seven days a week, people get killed," said Huntley, who was among the customers on hand last week for Sun Microsystems, Inc.'s announcement of its 64-bit Ultra Enterprise server line.

Huntley said he was looking for a way to move off mainframes as the January expiration date for the lease on his NCR Corp. Teradata system draws closer.

He is just the kind of customer Sun hopes to snare with its line of high-end Unix servers and expanded service and support offerings.

Sun is offering its corporate accounts 24-hour, seven-day-a-week support. That will be enhanced by diagnostic software designed to forecast systems problems in the Ultra Enterprise boxes.

The vendor has increased its support staff by 40% in the past year and has spent more than $100 million in additional resources there, said Ajay Singh, marketing director at the SunService division. Singh declined to give the actual number of support and service personnel, however.

"If you're trying to wean someone from a mainframe, you'd better have a lot of support," said Frank Dzubeck, president of Communications Network Architects, Inc. in Washington.

Ultra Enterprise 6000	
Processors: One to 30 167-MHz UltraSPARC RISC	
Memory: 64M bytes to 30G bytes	
Hard disk: 12.6G bytes	
Maximum storage: Up to 10T bytes	
Other features: CD-ROM	
Starting price: $213,095	

The seven machines in the Ultra Enterprise line cost between $40,000 and $4 million and scale from six to 30 processors.

They extend from low-end file and workgroup servers to the Ultra Enterprise 5000 and 6000 models for large data warehouses. The systems will ship this quarter.

Upgrading to the new line will require a box swap for current customers.

Yet analysts and users lauded Sun's decision to provide "hot-swappable" common components within the new machines. That means disk drives, processors, power supplies and memory can be replaced while the system is running.
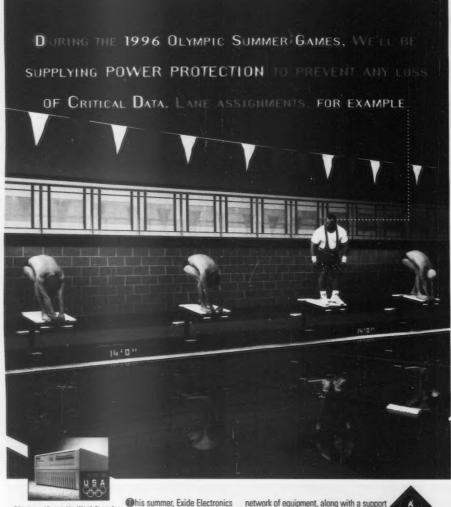
Features look good

"The common components are very attractive," said Jean S. Bozman, a Unix analyst at International Data Corp. in Mountain View, Calif. She and other analysts said Sun has taken an aggressive pricing stance against competitors Hewlett-Packard Co. and IBM — neither of which has unveiled 64-bit server hardware.

Other users said the offerings position Sun well against its rivals.

"This is the direction this industry's been headed, and Sun's very strong here in terms of competition," said Andrew McCabe, an associate manager of global systems and technology at Merrill Lynch & Co.

John Signorello, a programming manager at Salant Corp., a New York apparel manufacturer, said he was especially attracted by the new line's improved reliability through redundant power and cooling features, plus its automatic system recovery around failed components. "I'm very impressed by the added performance vs. low cost," he said.

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And
every reason
you didn't.

VB/Link uses ActiveX for Web apps

By Tim Ouellette

Brainstorm Technologies, Inc. has upgraded VB/Link for Notes to take advantage of Microsoft Corp.'s ActiveX specification for World Wide Web applications.

VB/Link 4.0 offers ActiveX controls for developers of Lotus Development Corp.'s Notes 3.x and 4.x applications. ActiveX is a superset of Microsoft's OLE specification that adds features to let developers create interactive, Web-enabled applications.
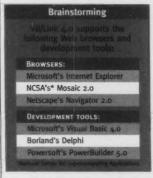
Previous versions of VB/Link targeted users of Microsoft's popular Visual Basic development tool, but VB/Link is "not just for Visual Basic anymore," said Mitch Lieu, Brainstorm's vice president. VB/Link 4.0 works with any development platform and Web browser that supports ActiveX (see chart).

The software breaks the typical Notes interface into different objects that developers can use in their programs. Applications that use the controls can then access Notes databases directly from a desktop or over the Internet.

With ActiveX controls, VB/Link 4.0 "lets developers create more expanded functionality within the Notes environment," said Ian Campbell, an analyst at International Data Corp. in Framingham, Mass.

Users are beginning to move from Notes 3.x to Notes 4.0, and companies need development tools to create applications right away. ActiveX controls let users access Notes databases from customized client interfaces, either within Notes or from a Web browser, for example.

Brainstorming

VB/Link 4.0 supports the following Web browsers and development tools:

BROWSERS:
Microsoft's Internet Explorer
NCSA's* Mosaic 2.0
Netscape's Navigator 2.0

DEVELOPMENT TOOLS:
Microsoft's Visual Basic 4.0
Borland's Delphi
Powersoft's PowerBuilder 5.0

*National Center for Supercomputing Applications

While ActiveX support is slowly gaining the attention of vendors, including Lotus, Brainstorm "gives developers a tool set they can use today," Campbell said.

Brainstorm has tried to slash development time by offering three one-step button controls in VB/Link 4.0:
● NotesData adds Notes replication, electronic mail and full-text objects.
● NotesView creates the same hierarchical Notes views.
● Notes Rich Text lets developers access native Notes rich text data.
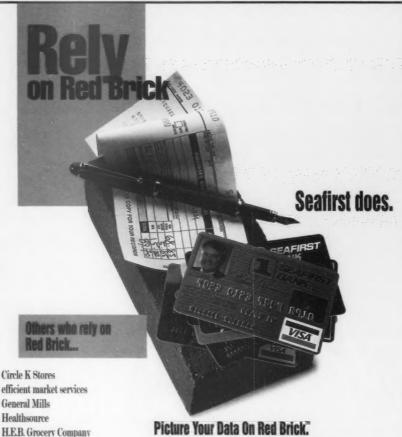
Early users said the speed has improved. "From a programmer's point of view, it is much simpler," said Bobby Cuthill, an external consultant working on a Notes development project at Merck & Co. in Philadelphia.

Cuthill said he is working on internal Notes applications, so he hasn't tested the Web-enabling features of ActiveX yet.

Cambridge, Mass.-based Brainstorm has also added support for rendering complete Notes forms, including the background form design, default field values and security access, within the developer's application.

News

IBM upgrades notebook line

By Mindy Blodgett

IBM, which ranks fourth in notebook computers, is attacking the low end and beefing up its high-end offerings in a push to gain ground on the market leaders.

IBM PC Co. this week became the latest notebook provider to announce portables with high-end features below $2,000.

IBM also upgraded its high-end ThinkPad 760s, adding 100-MHz, 120-MHz and 133-MHz processing speeds with aggressive pricing starting at $3,399.

The announcements are part of the company's ongoing strategy to gain stature in the low-end general business portion of the notebook scene while retaining its technological leadership.

"We are trying very aggressive-

ly to get into the segment of the marketplace where people do not expect us to be," said Kevin Clark, IBM PC Co.'s director of global strategic marketing for mobile computing.

Market chase

IBM is chasing Toshiba America Information Systems, Inc., the notebook market leader and the master of the low- to midrange offerings, industry analysts said. IBM's 9.9% market share in 1995 also ranked behind Compaq Computer Corp. and NEC Technologies, Inc., according to Dataquest, Inc.

Analysts and users said that IBM's offerings are elegant and feature-rich, but they added that the company has some problems to overcome if it wants to move

forward in the marketplace.

Ken Dulaney, an analyst at Gartner Group, Inc. in San Jose, Calif., said users have complained about difficulties in availability and in delays in shipments.

"They have to get their act together with the lead times," Dulaney said.

One user said that while he likes the IBM designs, he has been frustrated by the lack of availability.

"I have bought many IBM machines, but when you have a capital request for an entire division, you're going to buy whatever is right there on the shelves," said Kevin Danehy, systems manager at Millipore Corp., a water filter manufacturer in Bedford, Mass.

The new IBM offerings have these features:

● The refreshed high-end ThinkPad 760s will have processing speeds ranging from 100 MHz to 133 MHz with as much as 16M bytes of memory; Peripheral Component Interconnect bus architecture; tilt-up keyboards; 11.3-in. to 12.1-in. screens; weights of 6.7 to 7.4 pounds; and prices from $3,399 to $6,999.

ThinkPad 760ED

Processor: 133-MHz Pentium

Memory: 16M bytes, expandable to 80M bytes

Hard drive: 1.2G bytes

Screen: 12.1-in. thin film transistor color

Weight: 7.4 pounds

Battery life: 2.8 hours

● The low-end ThinkPad 365s will range from Cyrix 586-class processors up to 120-MHz Intel Corp. Pentiums. The machines will have 10.4-in. and 11.3-in. screens with memory ranging from 540M bytes to 1.08G bytes. The notebooks will range in weight from 5.8 to 6.4 pounds. Pricing wasn't set, but IBM officials said they would range from less than $2,000 to $2,999.

Pick of the bunch

A sampling of Apple's new PCI-based Power Macs

	LOW END	HIGH END
Model	7200/120	9500/150
Processor	120-MHz PowerPC 601	150-MHz PowerPC 604
Memory	8M bytes or 16M bytes	16M bytes
Hard disk	1.2G bytes	2G bytes
Starting price	$1,899 (8M bytes); $2,299 (16M bytes)	$4,799

Power Macs now run Windows

By Lisa Picarille

Users who want to run both Macintosh and Windows applications on a single machine can do so on Apple Computer, Inc.'s new Power Macintosh 7200 systems.

Apple is trying to extend beyond its core following of loyal Macintosh users with a PowerPC-based Power Macintosh that includes either a 100-MHz Pentium chip from Intel Corp. or a 100-MHz 586 chip from Cyrix Corp.

The systems will enable Macintosh users to natively run Mac OS, DOS, Windows 3.x, Windows 95 and Windows NT applications.

Although Apple will preload only Mac OS and DOS, users can install Windows 3.x, Windows 95 or Windows NT. Analysts agreed that the new Power Macintosh is innovative, but they question whether the machines will make a dent in either the corporate or education markets.

"There is no other machine like

it in the world — a Mac and a Pentium shoved into a single box," said Pieter Hartsook, editor of "The Hartsook Letter," a newsletter in Alameda, Calif. "But I don't see this as something everyone will want. This is an answer for users who want a Mac but still need to run one or two Windows applications, a vertical application that is only available on Windows or a DOS legacy application."

Dual function

Nathan Nuttall, an analyst at market research firm Giga Information Group in Cambridge, Mass., said Apple's new machines are best suited for corporate scenarios in which a user needs to run both a Macintosh and a PC.

Apple officials said they anticipate that these DOS-compatible systems will sell well into the education and small home-office markets, but Nuttall disagreed.

"They are aggressive in terms of pricing [compared with the first round of pricey Power Macintoshes released in 1994], but still the cost is slightly prohibitive for the education market," Nuttall said.

Nick Micozzi, science coordinator at the Plymouth Public School District in Plymouth, Mass., which has approximately 500 PCs and 100 Macintoshes, said that four months ago he purchased a handful of fully equipped Pentium 100-MHz machines for about $2,100 each.

"PCs are more cost effective. I can get much more machine for much less money, and there is an unlimited array of software," Micozzi said.

Latest Intel laptop chips could be too hot

By Bob Francis
and Mindy Blodgett

Intel Corp.'s Pentium parade continues marching in quickstep time.

But Intel may be outpacing mainstream users and some hardware vendors, particularly with a new laptop chip that may require some unattractive trade-offs.

For example, some portable users at Commerce Bank in Cherry Hill, N.J., are "pushing for the latest and greatest," said George Staton, an assistant vice president at the bank. "But I am holding off as long as I can because prices are dropping, and faster chips may be coming."

The same holds true on the desktop, Staton said. "If I wait long enough, maybe the 200-MHz speed will cost what the 166-MHz does now," he said. And according to Intel's plans, he is on target.

Intel will add 200-MHz desktop

Pentium processors to its lineup in June, about two months sooner than expected. Prices will be equivalent to 166-MHz chips.

Intel will add a 150-MHz mobile Pentium processor later in the summer. But that chip will show only a small performance gain over 133-MHz mobile processors, sources briefed by the firm said.

And Intel next month will drop prices on 100-MHz and 120-MHz Pentium processors, two products scheduled for extinction by year's end. That positions the 133-MHz Pentium as the entry-level chip.

Though most PC vendors expect to offer the 200-MHz desktop Pentium as soon as possible, some are a bit more reserved about the 150-MHz mobile Pentium. It provides only a 5% performance boost above the 133-MHz mobile Pentium. More important to users, the faster clock speed increases the heat of the system and drains the battery.

While PC vendors wouldn't comment on future products, they said they are likely to develop products with the mobile chip despite the problems. "We've been following the Intel road map for some time, and I believe we can continue to do that," said a spokeswoman at Dell Computer Corp. in Austin, Texas.

For a select few?

But others admitted the mobile chip could be a niche market. "It'll be high-priced and a battery hog, so it may not be a mainstream product for some time," said one PC vendor product manager, who asked to remain anonymous.

"It sucks power, and the wattage is just way too hot," agreed James Greene, an analyst at Summit Strategies, Inc. in Boston. He said that, until now, the increase in notebook processor speeds has called for a tweak of laptop designs. But vendors now are con-

sidering adding fans to notebooks, a move that would reduce battery life and add noise.

Richard Pierce, director of marketing for mobile products at Intel in Santa Clara, Calif., denied the faster chip is causing undue design problems. Yet he conceded, "Obviously, the faster the chip, the more difficult it is to deal with heat and other issues."
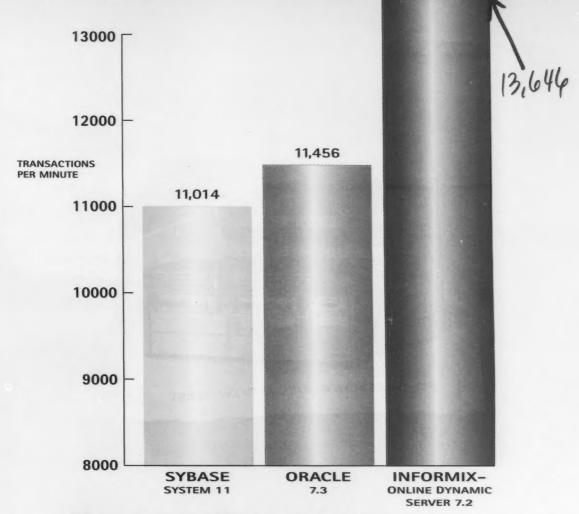
Randal Giusto, an analyst at International Data Corp. in Framingham, Mass., said it remains to be seen whether vendors can "absorb the 150."

"But Intel has been releasing these notebook chips in rapid succession, and the vendors have been handling it," Giusto said. "They can probably handle this as well."

To play air guitar

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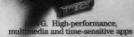
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Computer Industry

Secured growth

RSA buy will give Security Dynamics integrated products

By Gary H. Anthes

RSA Data Security, Inc., whose technology is a de facto encryption standard in the commercial world, last week was acquired in a deal estimated at $300 million.

The buyer was Security Dynamics Technologies, Inc. in Cambridge, Mass., a market leader in the sale of smart cards for remote computer access control.

Analysts said the merger should result in tightly integrated products that combine token-based user authentication, data integrity and privacy. Security measures to address all these needs are now available separately.

John Pescatore, research director of information security at IDC Government in Falls Church, Va., said Security Dynamics now is likely to introduce its SecurID PCMCIA card with RSA technology embedded. That would give users the strong access-control protection offered by the one-time password feature. It also would provide the ability to encrypt transmitted data after a network connection is made.

RSA President Jim Bidzos agreed that is a likely direction for the company, but he declined to provide details.

RSA in Redwood City, Calif., licenses patented algorithms for public-key cryptography, which lets users exchange private messages or files without first having to share secret keys. The technology also uses "digital signatures" to verify the senders and contents of messages.

RSA technology is used in products such as Windows, Notes and Netscape Communications Corp.'s Navigator World Wide Web browser.

Security Dynamics' SecurID card computes and displays a new, unpredictable password each minute. A corresponding feature is implemented on a network server so that the user card and host machine always agree on which password is valid. The scheme makes it virtually impossible for anyone without the card to guess and use a valid password.

Bidzos said he will remain president of RSA, a wholly owned subsidiary. "For our customers, there will be no change in their relationship with RSA," he said.

Bidzos said products to protect 'net commerce must have several elements. "One is tokens; passwords are not enough anymore. Encryption is absolutely a part of it, and public-key certificates will be part of it," he said. A certificate is a digital document that guarantees a public-encryption key belongs to the person claiming it.

RSA President Jim Bidzos *says security products should use tokens, encryption and public key certificates*

PCs, IBM alert tweak tech stocks

By Randy Weston

It was a mixed quarter for technology stocks, and as expected the PC market took the hardest hit. But what sent the Dow into a brief tailspin was a heads-up from IBM that future profits would drop.

Some industry analysts are calling the slump in PC sales "an inventory correction," not a sign the end is near.

"What Wall Street cares about is the near-term, not the long-term future," said Sheldon Grodsky, an analyst at Grodsky Associates, Inc. in East Orange, N.J. "This means nothing for IBM in the long run.

"This recovery is more [about maturity]," Grodsky said. "We're not bouncing off any bottoms now. It may be that the volume of growth will be much more moderate from now on."

Bill Gurley, an analyst at CS First Boston Corp. in New York, said there are two ways to view the slump: either global information technology spending is slowing or the slump was an inventory correction in the PC market.

"When you have component costs fall as dramatically as they did, people have to clean out their inventory," Gurley said. "There was an overbuild, there's no question about it, but it's being fixed."

Although revenue was up at industry leader **IBM**, profit was down, and the news sent the April 17 Dow Jones industrial average plunging 70.09 points — 30.4 of that from IBM stock alone. Much of the blame for the 40% drop in profit fell on the recent acquisitions of Tivoli Systems, Inc. and Object Technology International, Inc. Those purchases accounted for a $435 million one-time expense. Another $236 million was spent on employee buyout packages. But Wall Street reacted most to IBM Chairman Louis V. Gerstner's comments that falling PC prices and a rising dollar would hamper future growth.

The financial community was already braced for bad news from **Apple Computer, Inc.** Apple posted a $740 million loss, slightly more than it had estimated. Chairman and CEO Gilbert Amelio said he will lay off 1,500 more workers — 1,300 layoffs were announced in January — and streamline the company's complex product line. Amelio expects Apple to return to profitability within 12 months.

Slowing growth sent results from database companies **Sybase, Inc.** and **Informix Software, Inc.** sliding in the first quarter. Sybase shook up its upper management after posting a $6.9 million loss. Informix blamed its profit decline on one-time costs related to the purchase of Illustra Information Technologies, Inc.

The surprise of the quarter, however, was **Intel Corp.**, which did better than analysts had expected. It posted a slight increase in profit and a rather healthy jump in sales, despite the slowdown in the PC market. Intel's stock rose 4½ points the day after the company announced its earnings. It led a rally that carried the Nasdaq index to a record high of 1,124.92.

Sun Microsystems, Inc.'s glowing earnings report combined with Intel's to reassure investors that the computer industry is alive and kicking. The Unix systems powerhouse's sales and profit were driven up by strong sales in multiprocessing desktops, desktop servers and high-end servers.

Meanwhile, Intel's main rival, **Advanced Micro Devices, Inc.**, paid for a late entry into the Pentium-class market. But analysts are expecting the company to bounce back by this time next year, when the company releases a sixth-generation microprocessor.

The internetworking, Internet and intranet fields saw a golden quarter, with firms such as World Wide Web tool maker **Spyglass, Inc.** nearly doubling profits.

1996 calendar first-quarter earnings				
COMPANY	REVENUE JANUARY THROUGH MARCH	PERCENTAGE CHANGE FROM 1995	PROFIT/LOSS JANUARY THROUGH MARCH	PERCENTAGE CHANGE FROM 1995
Advanced Micro Devices	$544M	−13%	$25.3M	−70%
Apple	$2.18B	−18%	−$740M	−11%
AT&T*	$12.96B	5%	$1.36B	14%
CompuCom Systems	$413 M	28%	$5.8M	50%
IBM	$17B	5.7%	$774M	−40%
Informix	$204M	38%	$15.9M	−10%
Intel	$4.64B	31%	$894M	0.6%
LCI Logic	$311M	11%	$42M	−7%
Microsoft	$2.2B	39%	$562M	42%
SAP	$466M	40%	$79M	62%
Spyglass	$4.6M	91%	$832,000	5%
Sun	$1.84B	22%	$143M	33%

* Based on AT&T as a whole

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Paul's IPO

Ladies and gentlemen, I've called this press conference to make the bold announcement that I, Paul Gillin, have decided to go public. I will offer 500,000 shares next month at a low asking price of $8 per share. I will now open the floor for questions.

What business are you in?

CyberGillin, Inc. is a client/server, Internet-enabled OLAP warehousing kind of company with a lot of systems integration thrown in. I'm quite willing to be acquired, by the way.

What products are you shipping?

Well, if you mean actual products that are in customers' hands and being used for something in a business context where mission-critical uses and shifting paradigms are an issue, then, um, I am shipping, er, nothing.

So if you don't have any products, what are your investors buying?

Why, my customer base, of course. At this very moment you can visit my Web site and enjoy informational services such as pictures of me when I was a kid and entertaining PowerPoint presentations. I've had more than 200 visitors to date, and at current multiples in on-line services, that's worth about $300,000.

But how are you going to make money?

Advertising.

You're valuing yourself at $4 million out of the chute. Isn't that pretty high for a company with no revenue?

Not at all. Yahoo is trading at 436 times annual revenue. I figure if I bring in $6,000 in business next year, I can easily justify a market cap of at least $3 million.

But Yahoo gets 2 million hits per day on its server.

I have every reason to believe those customers don't stay very long. And we have a secret weapon.

What's that?

Partnerships! I'm going to be very open to partnering. In fact, I'm willing to sign a long-term partnering agreement with just about anyone who'll buy dinner.

But Mr. Gillin, isn't this just a bald-faced attempt to cash in on the investment frenzy in technology?

Look, buster, if you want to be another Visicorp, that's your business. I'm committed to this market for the long term. By the way, does anyone know which airlines have the most flights to Rio?

Paul Gillin, *Editor*
Internet: *paul_gillin@cw.com*
http://www.ultranet.com/~pgillin

LISTEN KID, I KNOW WE TRAINED YOU FOR THE POWER LIFTING EVENT, BUT THERE'S BEEN A CHANGE. YOU'RE NOW RUNNING IN THE INTERNET 2ND QUARTER SPRINT. GO HAVE A CUP OF JAVA—IT'LL HELP YOU LOSE WEIGHT AND THIN OUT.

Offshore threat

"Look out, here comes India" and "Look before you leap" [CW, Feb. 26 and March 4] made interesting readings but missed an important point.

Most [contracting] companies get short software contracts, and as soon as the programming contract ends — perhaps every six months — the foreign programmers must relocate.

Relocating two to three times a year is not uncommon in this industry. How many U.S. programmers are willing to do that?

Whether we want it or not, the ugly truth is that outsourcing is profitable for U.S. companies, and it's going to grow.

Vishal Minocha
Grand Rapids, Mich.

After reading about American programmers being fired and replaced by foreign programmers, I wonder why nobody has suggested taking this idea to its logical conclusion. If it is possible to find highly technical workers such as programmers, it should be easy to find semitechnical workers such as managers.

These companies could save even more by replacing their [managers] with foreign workers, not to mention the advantage of having managers who speak the same language as their workers.

Bob Jeffrey
Alexandria, Va.

Ranking of systems integrators flawed

While we appreciate your efforts to help your readers better understand the systems integration marketplace, we believe your rankings fall far short of that ambition ["The good, the bad and the ugly — Rating 25 of the largest systems integrators," CW, Feb. 26].

First, your ranking is a disservice to your readers because it compares full-service management consultancy firms with computing firms and providers of specialized information technology services.

You aren't comparing like with like. Firms that develop and install technology to enable operationwide business change are part of a much more complex and strategic program than firms hired to upgrade or install disparate systems.

Second, you treated all performance criteria as though they are of equal weight. How clients measure the success of their projects can vary greatly.

While an information systems manager may put high value on criteria such as compatibility with other systems, larger enterprisewide projects tend to be judged by senior management on the contribution to boosting business value.

Third, your findings suggest that there is a significant material difference in attitudes toward the companies you ranked. However, it is clear that there is little overall difference because all 25 integrators were rated favorable and most fell into a very narrow band between neutral and satisfied.

While it is important to define the market for your readers, we believe that they require a better service than you have offered on this particular occasion.

Keith Burgess
Managing partner,
competency practices
Andersen Consulting
Northbrook, Ill.

More letters, *page 40*

C++ is meant for best programmers

If the forces that shape our technology turn out to be right, hundreds of thousands of existing applications in a tried-and-true language such as Cobol will be rewritten in C++.

C++ is a great language, but it isn't one that should be turned loose on the general populace of programmers.

It is meant for that upper 5% of the bit-twiddlers who live and breathe the intricacies of class inheritance and polymorphism.

Maintainable programs are written simply and accompanied by sufficient documentation. C++, for all its power and majesty, shouldn't be embraced by the IS legions — only by the IS super-techs.

Patrick J. O'Meara
Cupertino, Calif.
76231.275@compuserve.com

Here a chief, there a chief . . .

Michael Cohn

I used to know who was in charge. I could tell who the CEO was. I could tell who the chief financial officer was. And I could tell who the chief information officer was. He was the guy always trying to schmooze with the CFO and CEO.

But now I'm lost. CIOs are yesterday's news. Management consultants have invented a bunch of new chiefs, and we Indians can't even figure out who signs our time cards anymore. There are new acronyms atop the organizational chart, such as the following:

> Soon you'll report to either the chief knowledge officer or the chief legacy officer.

The CTO. CIOs once had to soothe savage users, attend endless meetings and still keep up with technologies that emerged every 35 minutes. But no longer, thanks to the chief technology officer. The CTO isn't encumbered by deadlines and downsizing. He doesn't run reports or bother with budgets. Instead, his finger is steadfastly pressed on the pulse of technology. His brutal schedule requires him to read technical literature and think-tank reports six hours a day. That actually works out pretty well; it leaves the other two hours for lunch with a vendor, then a quiet ride home just to unwind.

The CKO. The asset du jour of corporate America is knowledge, but the information systems department is clueless about anything that doesn't fit in a spreadsheet. Hence, the chief knowledge officer, someone who can harness the intelligence, experience and intuition lurking within your company. Wouldn't it be great to finally figure out everything your company knows, where that knowledge resides and how to exploit it for tremendous business advantage? Then again, someone has been doing that for years — your competition.

The CWO. Don't look now, but your competitors are all over the World Wide Web, racking up hits on their new home page. That's because they've got a chief Web officer who's helping them reach markets you never knew existed. But cyberskills are in short supply, so act fast to get your high-priced CWO. What's the difference between a $45,000-per-year webmaster and a $145,000-per-year CWO? It's simple: The latter was placed by a headhunter.

The CDO. Data warehousing and data mining can make or break a business. But who owns the data? Where does it go? This is why you need a chief data officer. If your CDO isn't the highest-paid executive in your company, he soon will be — especially once he's updated a few of those confidential payroll files.

The CVO. Salesmen live with customers. Engineers work in the field. So you need a chief virtual officer, someone to master mobility and build your virtual office. If you buy a few thousand laptops and pagers and create an efficient "invisible workforce," you can pull down big bucks as a CVO. One guy made a seven-figure salary easily. He was CVO of four companies at once, and it took months before anyone figured it out.

The CLO. Would you believe a chief legacy officer? CIOs don't have time to struggle with batch windows, spaghetti code and 20-year-old hardware. So the CLO keeps that old junk running. Sure, it's a dead-end, dirty job. Sure, the CLO will be history as soon as the company migrates off legacy systems — which, in most cases, gives him another 30 to 40 years.

The CPO. The latest seat at the table is for the chief predictions officer, whose sole responsibility is to make forecasts about hot technologies and business trends. This vision is critical. Nearly a dozen companies that were in the Fortune 100 10 years ago are out of business today. Only a sharp CPO — or maybe my stockbroker — could have picked these corporate casualties. The idiot had me in all of them.

Cohn works at a large computer company in Atlanta, where he tries to avoid the chief downsizing officer.

Does Novell have any pulse left?

Brett D. Arquette

A networking expert recently told me, "Novell is dead and buried. They just never bothered giving it last rites."

What happened? For years all I heard was "Novell this" and "Novell that." But after a fact-finding mission, I found out what's changed. Novell's NetWare has been flattened by Microsoft's Windows NT.

> The word on the street is that LAN managers are running, not walking, away from NetWare.

Here's my saga. With a new budget in place, my boss asked me to choose a PC/LAN platform for 100 users. In the past few months, I've gathered information from five PC network managers around Florida. To my surprise, none of them had anything positive to say about Novell.

One network professional who works for a major theme park in Orlando (use your imagination) said his firm is running, not walking, away from Novell. The theme park has installed a client/server network using twin Digital Equipment Corp. Alpha 2100 servers running Windows NT.

He called the platform "rock solid." Why migrate to NT? Scalability had a lot to do with it. When he runs out of system overhead, he can simply slide in another 300-MHz processor card or drop in an additional gigabyte of memory. The same process using Novell required buying more Intel PCs, hooking them together and loading software, he said.

Another network engineer said, "Novell is a platform more suited for a mom-and-pop shop. Novell was the first and only server platform with the commercial strength to accommodate up to 20 networked PCs. Novell caught an exclusive piece of the market share and then pretty much sat on it. They never really expected anyone to come along and knock them off their throne." He confirmed that Novell has a scalability problem, as well as some communications problems with other platforms and protocols.

I acted pro-Novell when I contacted the next systems manager on my list. I told him I had a choice of client/server platforms and was leaning heavily toward Novell. That statement was met with a full minute of derisive laughter. It was as though I had said I intended to buy a Yugo.

After he stopped laughing, he explained, "IS managers who recommended Novell to their bosses, bought it, implemented it and struggled through its growing pains aren't about to change horses midstream." Not only had he experienced the same problems with Novell the others had, but he added that "Novell is a bandwidth hog."

The last two client/server managers recommended a LAN built with Windows NT and, because we're a Digital shop, Digital's Pathworks. When I asked about Novell, they advised: Don't use Novell if you're starting from scratch.

I know this is an unscientific and small sampling of opinion. But where I come from, word-of-mouth counts for something. Each of these people has worked with both Novell and NT, so their views aren't based on ignorance of either product. The clear impression is that Novell's market strength is on the wane. Maybe it's similar to Cobol, where only the sheer volume of its installed base keeps it limping along.

In the next few months, I'll make a formal recommendation for the LAN and send it upstairs. There must be people still buying Novell products. If so, please tell me why. I want to know.
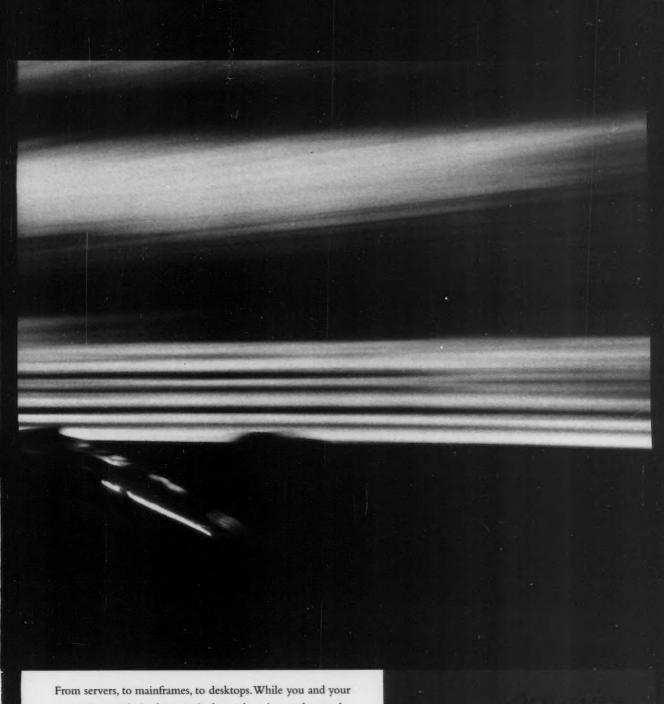
Arquette is IS manager at the 9th Judicial Circuit Court of Orange County, Fla. His 'net address is barq@iag.net.

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Letters to the editor

CONTINUED FROM PAGE 36

Readers respond to our Victoria's Secret photo (and the story, too!)

Data 'wearhouse' gains

Victoria's Secret to weave profits from store data

By Michael Goldberg and Jaikumar Vijayan

Victoria is revealing some ...
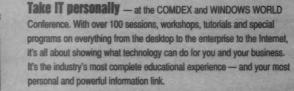
I have to wonder what the photos included in the front-page article "Data 'wearhouse' gains" [CW, April 8] had to do with the information included in the article. It no doubt encouraged your (male) readers to pick up the edition more quickly than usual, but why not picture the models in "miracle bras," which were actually mentioned in the feature? Maybe Frederick's of Hollywood will undergo a major migration, and *Computerworld* can report on that.

Twila Upchurch
Chicago
hestair@mcs.net

I must say that in all of the years that I have been reading *Computerworld*, I have never found a more alluring article than your piece on Victoria's Secret's newly designed data warehouse. It was truly a beautiful piece of work. Written in soft, silky tones, it captivated the imagination of all my colleagues.

What next, a *Computerworld* swimsuit edition?

Matthew Shaffer
Phoenix
GVSHAFM@ad.state.az.us

Your photos of Victoria's Secret's models show that exploitation of women is alive and well at *Computerworld*.

The captions have nothing to do with the lingerie-clad models in the photos. Graphs of the data revealed through the data warehousing project or even a photo of IS Vice President Rick Amari certainly would have been more in keeping with your code of ethics, particularly Item 3: "We insist on fair, unbiased presentation in all news and articles." We can only hope that if you do a story on information systems at *Playboy*, you won't feel compelled to show that company's "product" as well.

Bradley Sheppard
Richmond, Va.
73243.2347@compuserve.com

I cannot believe you made it through the entire article about Victoria's Secret's information technology plan without mentioning SLIP access. (I'm sure this is the 144th letter of this type, but hey, you have to try.)

Mark Wonsil
4M Enterprises, Inc.
mwonsil@wonsil.com

I'm sure that I'm missing something here. If some Victoria's Secret stores sell more or fewer items than "average," couldn't the manager of the store speak up? Isn't that what they are paid to do? It may be too simple, but it sure would cost less than a $5 million data mining project.

Brian Reeves
College Station, Texas
brianr@metricanet.com

Merlin headline misses

After reading Laura DiDio's article "IBM waves wand at Merlin" [CW, April 8], I thought you might like to know that IBM's code name of "Merlin" is not named after the magician in Arthurian legend. Instead it is named after a type of falcon. Future releases of OS/2 will supposedly be named after birds of prey.

Bill Fyfe
Deland, Fla.
bfyfe@co.volusia.fl.us

customer service
the new competitive edge
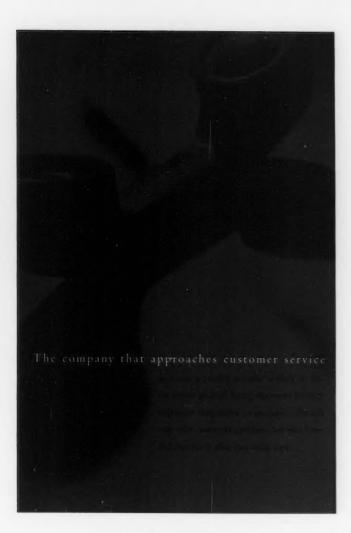
WELCOME
to the front-lines

In an era when the customer is king, when the talk is of delighting and even "astonishing" customers, companies are under increasing competitive pressure not only to provide excellent service, but also to anticipate what customers will demand next. And in many forward-thinking companies, it's the customer-service operation that's being tapped to carry out these dual tasks.

It may sound like a tall order for customer service, an area that not long ago was considered by many a back-office necessity and a cost center. In fact, in many companies, customer service is now regarded as a critical front-line resource in building and maintaining profitability. Consumers have become far more sophisticated and demanding, and companies invest ever increasing amounts of human and financial capital to be able to respond rapidly to customer questions and complaints.

"Customer service has become a huge differentiator in every industry," says Hugh Bishop of the Aberdeen Group. And to be responsive and competitive today, companies need strong, well-considered strategies for delivering service as well as technology resources to manage large volumes of transactions quickly, efficiently, and to the ultimate satisfaction of customers.

By improving responsiveness and productivity, the well-designed customer-service system can yield greater customer loyalty — and for some companies, increased opportunity for long-term service contract revenue.

To be fully responsive, customer service representatives (CSRs) need complete information about product features and availability, problems, and upgrades, along with full visibility of installation history and warranty and contract terms. Extensive customer response and service-tracking systems include many capabilities, such as call management and contract administration, service delivery tracking, inventory control features, and invoicing. Only with the right information technology in place can today's CSRs ensure that complex queries are routed and tracked so that each customer gets the right answer, and so no call "falls through the cracks."

Companies are also finding that the customer-service (CS) organization can be a gold mine of information about product users that can be leveraged throughout a company. By adding to their databases information about users' experiences and by asking customers for other key information, CS organizations can create a flow of data and ideas that enable other departments to make better decisions about product development, marketing, and business practices.

"The ultimate goal," says Aberdeen's Bishop, "is to use this information as a means to improve the whole business."

In return for high-quality support and service, many individual consumers are willing to share information about themselves, such as income and education levels, how much they use certain products, and what kinds of products they want. Similarly, business customers are often willing to share information about how they do business and with whom, what kinds of problems they have with the company's and competitors' products, and what kinds of products and services they're looking for.

> More than ever, marketing staffs are hungry for information about customer preferences that help them hone their messages and strategies for dealing in the marketplace.

FORWARD THINKING

From a big-picture vantage point, information about customer satisfaction and product quality or performance helps companies re-engineer their businesses and institute better financial controls. And good information allows companies to operate proactively, predicting trends and opportunities, and acting on them.

Of course, the contact the CS area is likely to have with the customer is seldom lengthy, and it's important to choose questions carefully. By asking the right questions and by having the right systems in place for collecting and processing the feedback, companies can begin to harness information to build customer loyalty.

5

A level of SERVICE that's hard to copy

Danka is the largest independent copier and fax distributor in North America. Founded in Tampa, Florida in 1977, it has seen its business expand from a single-store operation to a worldwide company whose revenue now exceeds $1 billion.

Driven by the demands of dramatic growth, Danka felt a compelling need to move to a fully integrated information system.

"We were looking for a product that was strong in its financial reporting capabilities with an integrated field service management system and inventory control.

The ability to roll information to a central system from numerous branch offices and flexibility in the software were key factors in our product evaluation," says John Sunyovszky, MIS Manager of Danka Business Systems Canada.
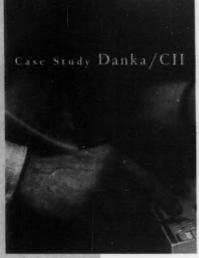
After extensive evaluation, Danka Canada chose CII Service Contract software. An integrated financial, distribution and service package from Complete Integrations Incorporated, CII Service Contract was developed in the PROGRESS application development environment.

By implementing the package along with PROGRESS RDBMS, Danka is in the process of consolidating all of its business into one database. This consolidation will enable staff at any Danka branch office to obtain information more quickly and accurately. Transaction times have been reduced and the management of service and parts inventories will be streamlined.

Dispatch of service technicians, creation and tracking of work orders, contract terms/conditions and premature maintenance/warranty issues are some of the functions of Danka's service business managed by CII. Multiple sites are now tied to the head office and benefit from having real-time information available to meet the dynamic demands of the service business. "This system allows us to make enterprise-wide changes with greater speed, thus improving efficiency and competitiveness," says Sunyovszky. "New business requirements can now be addressed with consistency and reliability."

Case Study Danka/CII

The willingness and ability to develop highly responsive customer service can be a boon to virtually any company, but it's particularly important for companies that make complex products and for industries that are highly commoditized.

Fast service is absolutely critical for companies in industries that experience rapid rates of change; when product lines or prices change in a competitive environment, for instance, a company is highly vulnerable to customer defections. "Being responsive fosters your customers' loyalty, and continued good service provides a way you can hold on to them during times of change," says Bishop.

Call-center service operations are often data intensive and that information can help a company not only to better manage service delivery, but also to improve existing products and develop new ones according to customers' expressed desires. By tracking such issues as installation history, warranty terms, and service contracts, companies get a better fix on costs for labor and parts used in delivering service. And with information about costs and service revenues, the company can make more informed decisions about pricing of services and service contracts. Far from being a cost center, some modern customer-service organizations are reaping actual profits.

THE ENABLING TECHNOLOGY

Of course, as companies come to rely more on their customer-service operations, both for revenue and information, the CS function itself grows more competitive and complex, so does the information technology needed to support it. Operations that have previously gotten by with relatively simple and even homegrown databases are finding they need more robust applications to manage both the bulk and the complexity of their tasks.

Often information must be routed to multiple sites, in various report formats, and across disparate technology platforms. It may be important to communicate product design problems to R&D, for instance, which may be located halfway across the country and require certain parts-number codes rather the sort of generic names customers might use for affected parts.

For companies with global operations, the difficulties may multiply as information has to be delivered in different languages, with varied currency data, or according to country-specific regulatory requirements. Information collected from customers in Germany, for instance, will not be useful to a dollars-based accounting system if it's stated only in deutsche marks. In multilingual environments, whether at home or abroad, companies need applications that are strong enough to support collection, storage, and analysis of multilingual data. Survey tools may need to be customized according to product availability and specifications in different markets.

Within an enterprise, the needs for information vary from one functional department to another. Financial and accounting areas want information presented in a certain format; marketing requires another slice of the information with an entirely different presentation. To maximize the value of the customer information, it has to be tailored for the intended users. And this requires open computing environments so that data can be easily exchanged and manipulated.

Further challenges arise as companies' business needs change and as technology improves — and competitive companies know that change is not a "sometimes" thing. To compete requires continuous adaptation. Applications used for collecting, analyzing, and customizing information reports should be easily and quickly adaptable to meet the company's ever-changing needs.

THE CUSTOMER SERVICE LANDSCAPE

Some call-center applications now available offer call "queue" systems that route a customer's problem to another "level," or department, within the company, along with information about the nature of the problem, criticality for the customer, and warranty and service terms. Usually, the customer service representative who takes the call from the customer remains the contact person, tracking the customer's problems and ensuring a solution.

But increasingly, companies with an eye on the competitive possibilities are using the help-desk level of operations as a two-way point of liaison with the customer. Typically, the contact occurs when a customer calls in with a question or complaint, say, about operation of an appliance or a question

For information on the software and hardware vendors featured
in this supplement, please check the appropriate box(es).

[ ] QAD   [ ] Wilke/Thornton

[ ] Foresight Software   [ ] CII

[ ] Sun Microsystems   [ ] Progress Software

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VALUE TO MARKETING:
REVEALING WHO ITS CUSTOMERS ARE, HOW
THEY USE THE COMPANY'S PRODUCTS, AND
WHAT THEY WANT IN THE FUTURE

VALUE TO R&D:
PROVIDING ACCURATE INFORMATION ABOUT
PRODUCT STRENGTHS AND WEAKNESSES,
IDEAS FOR NEW PRODUCT DEVELOPMENT

VALUE TO ACCOUNTING AND FINANCE:
SHOWING COSTS OF LABOR AND PARTS FOR
SERVICE AND TRACKING REVENUES THAT
RESULT FROM SERVICE OPERATIONS

VALUE TO MANAGEMENT:
PROVIDING ACCESS TO INFORMATION
REGARDING CUSTOMER PERCEPTION OF
PRODUCTS, INVENTORY CONTROL, QUALITY
ASSURANCE, AND ABOUT THE PERFORMANCE
OF THE CUSTOMER-SERVICE AREA ITSELF

about availability of a certain type of cereal. Or the call could be a request for technical support under a warranty or service contract. By asking the customer certain questions and by solving the problem, the CS representative can gain a significant amount of information in a short period.

For manufacturers, the customer's call for support may constitute "the first opportunity the manufacturing company has to find out what real people do with their products. Retailers don't often share that kind of information," says Jim Shepherd, vice president of research at Advanced Manufacturing Research, Inc.

Increasingly, companies are using technology solutions to manage more "proactive" services, like preventive and predictive maintenance. For example, customers who use sensitive or regulated equipment and items, such as a sophisticated piece of medical imaging equipment, can ensure they're not only maintaining the devices at an optimal level of operation, but that they're able to provide precise, detailed documentation of maintenance if required to do so by regulatory authorities. This kind of service attention, if it's fast, convenient, and hassle-free, tends to cement relations between customer and company.

ON THE HORIZON

Advances both in product development and communications hold some exciting possibilities for the customer-service field. Several companies are beginning to use voice recognition systems to manage customer calls of a certain level of complexity; when this kind of system is fully integrated into customer service databases, it can drastically reduce staff time required (the most expensive component of any customer-service organization) and free up staff to deal with calls of greater complexity.

Many companies have begun to use web sites and e-mail systems to provide answers to frequently asked questions or to allow customers to access procedures for repairing an item or initiating a service call. Some technology companies are posting on electronic bulletin boards software code patches that customers can download to upgrade or fix applications.

The World Wide Web will allow companies to achieve new

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MULTIPLE PLATFORMS

FLEXIBLE, TO ACCOMMODATE
CHANGING BUSINESS CONDITIONS

ADAPTABLE, TO ENABLE A COMPANY TO BUILD
APPLICATIONS THAT CAN BE DEPLOYED IN
HUNDREDS OF LANGUAGES AROUND THE WORLD

SCALABLE, TO HANDLE THE REQUIREMENTS
OF A GROWING ORGANIZATION

INTEROPERABLE, TO INTEGRATE INTERNAL
AND EXTERNAL DATA SOURCES

heights of responsiveness. By extending service applications through a web site, a company can provide customers with more information more quickly, interactively and eventually in real time. A web site can be like an ATM of customer service. Product users will get service when they want it, 24 hours a day. They can browse at their own pace, at their own level of interest. They can ask questions and get accurate, up-to-date information about parts or product availability and about service scheduling and status. And, increasingly, they'll be able to receive direct service over the Web when and where they need it.

In fact, the Web represents an opportunity for companies to dramatically redefine their relationships with customers. With the many capabilities the Web offers, the nature of that relationship can change from responsiveness to involvement. Eventually, companies will be able to use web sites not only for providing information about products and services, but also to show customers new products, gather their ideas, and set up a dialog. Increasingly, when a customer says "show

Changing the CUSTOMER SERVICE recipe

The Dial Corp., headquartered in Phoenix, Arizona, is a major manufacturer and marketer of personal care items, household and laundry products and shelf-stable foods.

Their problem: how to quickly and expediently record highly detailed information in non-routine situations (such as garment damage) with a high degree of consistency.

Dial wanted to be sure to ask all of the pertinent questions in order to achieve a quick perception of service. Dial also wanted to be able to "peel back the onion" - that is, to get extensive details about the consumers usage experience that led to the problem, so Dial could identify cause and effect.

The solution: The Survey Module that comes with the Consumer Response System (CRS), a software package provided by Wilke/Thornton. CRS gathers and digests consumer information, provides meaningful responses to internal and external customers, and enables the corporation to analyze the consumer data to affect change.

Case Study Dial/
Wilke/Thornton

With this module, Dial can ask questions and consistently gather and record responses.

The Survey Module uses several question types including yes/no or true/false; multiple choice; pick all that apply; and short answer.
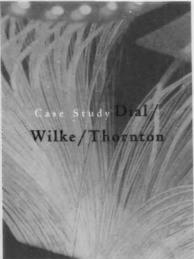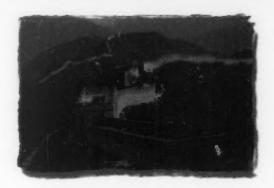
Dial created a survey called "Property Damage Form" for use by any representative who has a caller or letter describing garment damage. Some examples of the questions are: "Have you used this product before?"; "Number of units purchased;" "Date of incident;" and "Type of property damaged."

By using the survey process in conjunction with the contract entry and notes functions within CRS enables, Dial is able to evaluate the immediate situation and resolve it quickly.

Wilke/Thornton, a Progress Software value added reseller, has been helping companies realize the corporate-wide benefits of consumer response since 1983.

me," the Web will provide the way to do it. The Web's multi-media capabilities will make it possible for customers to see and hear how some products work. And they'll be able to experiment with products on-line, or download demonstrations and provide feedback later. By continually "listening" to the customer's feedback and acknowledging or acting on it, a company will be able to build and nurture relationships with customers and thus claim their loyalty.

THE IS CHALLENGE

But the possibilities can make for some stiff challenges for IS. In companies committed to building world-class customer-service operations, IS will be under more pressure than ever to help CS operate faster, more efficiently, and cost-effectively. Because the time-to-market imperatives are so strong, there is too little time for IS to design and build their own software solutions. They'll need strong core applications they can then customize to meet the organization's unique needs. These applications themselves will need to be cost-effective, easy to deploy, and easy to maintain and modify.

One of the problems some companies find when they look for software solutions is that, although some applications are full of features, they may fall short in ease of use or ease of customization. Companies often report that it is too

FOUR IMPERATIVES FOR THE PROGRESSIVE
CUSTOMER-SERVICE OPERATION:

DELIGHT THE CUSTOMER WITH RAPID AND
THOROUGH SUPPORT AND SERVICE

COLLECT AND ANALYZE INFORMATION
ABOUT CUSTOMERS THAT CAN FUEL
COMPANY-WIDE DECISIONS AND PROCESSES

GAIN ACCURATE INFORMATION
ABOUT COMPANY-WIDE
CUSTOMER SERVICE PERFORMANCE

EVALUATE SERVICE EFFORTS IN ORDER TO PLAN
FOR CONTINUOUS IMPROVEMENTS IN SERVICE
OFFERINGS THROUGHOUT THE COMPANY

complicated and too time-consuming to make an information system fully functional and integrated with the rest of its company's operations. And with some applications, they say, they've had to adapt their business systems to their software, rather than the other way around.

The success and effectiveness of the customer-service operation depends on the applications being able to deliver all the benefits the organization is seeking. Component-based development is becoming the enabling technology for IS staff who need to tailor the applications they use. Using pre-built graphical business components, developers can create reusable code quickly and easily. With a minimal learning period, they can customize applications to deliver truly useful solutions, significant cost and time savings, and risk avoidance.

BUY, BUILD, OR BOTH

One of the leading providers of component-based development technology, Progress Software, believes companies will need to better utilize their customer-service operations or face increased challenges as competitors get on the service bandwagon. To gain and maintain all the advantages that come with good service information, companies will need commercially available software packages that can be easily customized.

Progress Software offers a robust application development environment that harnesses the power of the component-based approach and allows companies to buy PROGRESS-based commercial applications, build their own, or do both. The PROGRESS graphical environment is easy to use so that in-house staff can produce specialized applications quickly and modify them later, as needed. And more than 2,300 independent software development organizations have chosen the PROGRESS environment as the foundation for their applications. Progress Software works closely with these application partners to ensure that their products deliver a high degree of responsiveness to companies' needs.

Together, Progress Software and its partners are building solutions that can help organizations deliver the full range of customer service and information delivery features needed to better compete in this far more customer-focused era.

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Unisys charts ClearPath

New server family will let users run host operating systems with Unix or NT

By Michael Goldberg

Casting a lifeline to its long-time installed base, Unisys Corp. last week unveiled mainframes that run its host operating systems and Unix or Windows NT in the same cabinet.

ClearPath HMP (heterogeneous multiprocessing) enterprise server, which is due in June, uses an Intel Corp. processor board to support Unix or Windows NT. CMOS processors support Unisys A Series or 2200 Series mainframe operating systems [CW, Feb. 19].

Unisys in Blue Bell, Pa., has developed middleware and hardware connections that let the desktop and host environments share one another's memory and provide a single-system image to users, said Sam Samman, director of program management for the ClearPath server family.

To beef up its marketing management, the company created a computer systems group and sought resellers for its systems.

But the open question is whether the vendor can market its new systems effectively.

Analysts said the technology will likely appeal to mainframe users who have been with Unisys for years. Some users said they are eager to employ the technology.

Options abound

Law enforcement officials at the Hillsboro County Sheriff's Department in Tampa, Fla., want access to as much legacy data as possible on their 2200 mainframe. J. R. Kennedy, commander of the agency's data operations bureau, said using one server to run mainframe and Windows NT applications is attractive.

ClearPath "gives us a lot of options," Kennedy said. Even in a worst case scenario, if a test Windows NT application doesn't work, the agency still can count on the mainframe elements of the server, he said.

Paul Woitzel, director of networking and technical integration at Blue Cross/Blue Shield of North Dakota in Fargo, is considering ClearPath as a way to get mainframe dependability and Windows

NT ease of use at the same time.

He said Unisys' server technology provides mainframe dependability to Intel-based servers and cuts the need for a LAN server in a client/server setup. "Everything as far as the file portability is taken care of for you," he said. Woitzel said he hopes to have some application developers do some mainframe-oriented work on PCs.

ClearPath "gives Unisys a viable story and a viable alternative within a familiar vendor's environment" for Unisys

customers, said Steve Josselyn, an analyst at International Data Corp. in Framingham, Mass.

"It simplifies going to a client/server environment for people who have been using Unisys mainframes," said Ed Carr, an analyst at Aberdeen Group, Inc. in Boston.

Unisys could expand the appeal of ClearPath beyond its mainframe installed base when the company offers ways to integrate the systems with its Unix servers, Carr said.

Legacy lifeline

Unisys' ClearPath server line was designed to help mainframe customers migrate to client/server applications. Among the offerings are the following:

PRODUCT	DESCRIPTION	AVAILABILITY
ClearPath HMP	Mainframe with a Pentium processor board to support Unix or Windows NT and CMOS technology to support Unisys mainframe operating systems	June
ClearPath 2200/3800	CMOS-based mainframe that supports 64 processors, aimed at Unisys 2200 Series users	August
ClearPath A2400 and A2800	CMOS systems for Unisys A Series users	May (A2400) June (A2800)
ClearPath A2100	Server that supports A Series operating systems running Pentium or Pentium Pro motherboard	June

DEC boxes score with users

By Jaikumar Vijayan

One year after their launch, Digital Equipment Corp.'s high-end TurboLaser AlphaServers are a big draw in the data warehousing, on-line transaction processing (OLTP) and Internet application markets, according to industry observers.

The symmetrical multiprocessor AlphaServer 8200 and 8400 series of systems were launched last April. They were positioned as mainframe server alternatives for commercial and scientific applications.

Since then, Digital has become one of the leaders in its market segment. Analysts estimate that Digital has shipped nearly 1,400 of the high-ticket servers, which

cost between $125,000 and more than $1 million.

"From a performance standpoint, I am pretty pleased with the product," said Irvin Becker, director of network computing at the Defense Investigative Services in Linthicum, Md. The organization, which performs background investigations of persons entering defense services, replaced an Amdahl Corp. 5890 system with two quad-processor AlphaServer 8400s. The systems, which support 4G bytes of main memory, are used to run a central data warehouse that contains more than 25 million records and 250G bytes of data.

"The product has certainly captured the performance high ground" in the enterprise server arena, said Jonathan Eunice, an analyst at Illuminata, Inc. in Nashua, N.H.

Sales boost

Digital's design has driven Turbo-Laser sales, analysts said. It combines an open, industry-standard architecture, hardware expandability, large storage capacity and support for very large memory (VLM). For instance, a top-of-the-line AlphaServer 8400 can support 12 350-MHz Alpha chips, 14G bytes of VLM, 39T bytes of storage, 144 industry-standard Peripheral Component Interconnect expansion slots and support for

Digital's Unix and OpenVMS operating systems. VLM is a 64-bit technology from Digital that can increase the amount of information stored in main memory and speed up large applications such as databases and OLTP [CW, April 8].

Though systems from other vendors, particularly Sun Microsystems, Inc. and Hewlett-Packard Co., also compete in the enterprise server space, analysts say Digital tops the performance chart — at least for now.

"What is interesting is that the machine is still new in its product life, and we are talking about only the beginning of its ability to expand," Eunice said. For instance, additions to the 8200 and 8400 lines later this year are expected to include 400-MHz Alpha chips and support for more than 50G bytes of main memory, sources close to the company said.

Digital's AlphaServer 8400 year in review	
Grade: A	
The system: Up to 12 350-MHz Alpha processors, up to 14G bytes of main memory, 39T bytes of disk storage, OpenVMS and Digital Unix support	
Strong points: 64-bit architecture, raw performance, high-speed processors, expandability, large disk storage and VLM support	
Future plans: Denser memory support, clustering and faster processors	

Source: Industry analysts

BancTec, Inc. has rolled out the S-Series, a family of high-speed document scanners.

According to the Dallas company, the S-Series scanners are tabletop machines that have scan rates between 70 and 185 document/min. They feature 300 dot/in. resolution and have integrated autofeeders and stackers that can hold 500 documents.

Pricing starts at $30,000 for the 70 document/min. scanner.

▶ *BancTec*
(214) 450-7753

General Automation, Inc. has introduced PowerAdvantage Desktop and Lite-Tower, two multiuser computers.

According to the Irvine, Calif., company, the two single-processor systems were designed for small businesses and departmental computing with four to 64 users with a wide variety of database and transaction-oriented applications. They are compatible with the company's high-performance systems, which scale from one to eight processors and support up to 1,000 users.

The systems feature a 100-MHz or 133-MHz Apple Computer, Inc. PowerPC 604 Processor. Disk options are available to configure systems with up to 8G bytes of disk storage. Networking, backup media and connectivity options also are available.

Pricing for PowerAdvantage Desktop and Lite-Tower starts at $5,500.

▶ *General Automation*
(714) 250-4800

U. S. Robotics, Inc. has introduced Sportster Winmodem, a 28.8K bit/sec. fax modem for Windows.

According to the Skokie, Ill., company, Sportster Winmodem offers fast throughput, the ability to upgrade software and special Windows software drivers that automatically install the modem and configure it for maximum performance. It works with all Microsoft Corp. Windows-based communications software.

The software-upgradability feature was designed to let the Sportster Winmodem incorporate the latest upgrades and features through a telephone call.

Sportster Winmodem costs $199. It comes with an Internet connection kit, software drivers and a fax and data software CD-ROM. More information is available at the company's home page at http://www.usr.com.

▶ *U. S. Robotics*
(708) 676-7010

Pinnacle Micro, Inc. has unveiled 10Xtreme, a 10-speed CD-ROM drive.

According to the Irvine, Calif., company, 10Xtreme has a 1.5M byte/sec. data transfer rate in an internal 5¼-in. half-height form factor — it fits into any available 5¼-in. open bay.

10Xtreme ships with interface cables and an integrated drive electronics controller for quick installation. It costs $299.

▶ *Pinnacle Micro*
(714) 789-3000

Micro Design International, Inc. has introduced Hot Swap CD Express Cabinets.

The cabinets are available in 32- and 56-disk CD-ROM configurations. According to the Winter Park, Fla., company, Hot Swap CD Express Cabinets have two levels of fault-tolerant security for continuous performance: hot-swappable CD-ROM drives and a dual power supply. The hot swap feature lets administrators swap out a drive immediately if it fails while the server is running.

The 32- and 56-disk configurations consist of eight-bay racks that house Micro Design's Extender Plus. That product was designed to overcome controller card slot limitations. It lets users add CD-ROMs to a system.

Pricing starts at $25,995.

▶ *Micro Design International*
(407) 677-8333

Product short

Themis Computer U.S. has unveiled the SPARC 20MP. According to the firm, the product can be configured with up to 512M bytes of local dynamic RAM and is the first Sun Microsystems, Inc. SPARCstation 20-compatible single board computer. It runs Sun's Solaris 1.1.2 and Solaris 2.5 operating systems. Pricing starts at $9,995. Themis Computer, Fremont, Calif. (510) 252-0870.

Hewlett-Packard rolls out
object middleware system, 48

Java to go			
VENDOR	PRODUCT	PLATFORM	AVAILABILITY
Borland Scotts Valley, Calif.	Latte	Windows	In stages, beginning Q2 1996
Gupta Menlo Park, Calif.	Centura for Java	Windows	Q4 1996
Imperial Software Technology Palo Alto, Calif.	XD/Java and JavaDesigner	Windows	Q2 1996 (XD/Java) Q3 1996 (Java- Designer)
Metrowerks Austin, Texas	CodeWarrior for Java	Macintosh	May 1996
Microsoft Redmond, Wash.	Jakarta	Windows	This year
Natural Intelligence Cambridge, Mass.	Roaster	Macintosh	Now
Oracle Redwood City, Calif.	Developer 2000	Windows	Q4 1996
Powersoft Concord, Mass.	Optima for Java	Windows	Q3 1996
Rogue Wave Software Corvallis, Ore.	JFactory	Windows	Now
SunSoft Menlo Park, Calif.	Java Workshop	Windows	May 1996
Symantec Cupertino, Calif.	Cafe and Caffeine	Windows, Macintosh	Now
TakeFive Software GmbH Cupertino, Calif.	Sniff+ for Java	Windows	Now

Java-speak

Tools ease Internet applet conversions

By Frank Hayes

Java, Java, everywhere.

What began a few months ago as a trickle of development environments for Sun Microsystems, Inc.'s programming language for the Internet has become a flood, as development tool vendors discover they can convert their C++ development systems to Java.

For users, the new versions aren't simply recycled C++ tools, but an easy way to retrofit custom applications to run on the World Wide Web.

Right now, many Java-based applications are little more than animated cartoons. But as new tools are rolled out this year, Java will become a popular way to make existing applications work across the Internet.

Next month, Imperial Software Technology Ltd. in Palo Alto, Calif., plans to ship a Java-enabled version of X-Designer, the company's widely used graphical user interface (GUI) builder for Unix. The tool set, which will cost $3,500, will automatically do about 70% of the work to convert Unix-based GUIs into Java applets, according to company officials.

And by September, Imperial plans to begin shipping a full-fledged drag-and-drop Java development system called Java-Designer.

The tools will give Java developers the advantages of both visual development and object-oriented structure, said Peter Gray, a software designer at Leitch Technology International, Inc., a video-broadcast equipment manufacturer in Toronto.

"X-Designer lets you see the object hierarchy you build rather than forcing you to think about how it looks on the screen. That's quite appropriate for Java," which is more object-oriented than C++, Gray said.

SAP overhauls training classes

By Julia King

SAP AG has overhauled its user education program in response to customer demands for shorter and more user-friendly training for the notoriously complex R/3 software.

Users can expect a formal introduction of a three-part multimedia training program in the next several weeks (see chart). The program will feature the following:

● Introductory classes, which range from a half-day to two days. These classes will target senior managers and give an overview of the integrated software system.

● Intermediate classes, which will focus on business processes. These classes are for project team members who configure software.

● Advanced workshops, which are recommended for users who have done some R/3 development work and seek to improve their design and implementation skills.

In another training move, SAP has begun to offer night classes in ABAP/4, R/3's proprietary development language. Such training was previously available only to users at companies that implement R/3. But given the overwhelming demand for ABAP/4 programmers, SAP has shifted to an open enrollment policy.

But getting a seat may be difficult. For a pilot program last fall, SAP received more than 700 calls in one day for 50 available seats.

The emphasis of the new R/3 training curriculum will be on hands-on experience vs. formal classroom instruction. For example, users will no longer be taught about each function and nuance in R/3's 1,000-plus tables. Instead, the revamped classes will focus on real-life business processes, such as procurement and order fulfillment, and the ties between them.

Previously, as much as 75% of SAP training took place in the classroom and was led by an instructor, but now only about 25% is instructor-led, company officials said. The other 75% of the time, users at classroom workstations practice on an R/3 system.

Other changes include as much as a 10-week reduction in overall training time.

Pricing for training delivered by SAP, which has classroom space to train about 1,500 people daily, is about $400 per person per day.

During pilot tests in Philadelphia last year, about 250 users tested the new curriculum, which is receiving high marks.

"What SAP has done is revamp [its] curriculum so it parallels what's going on in the business world," said Carl Moushon, manager of process development and integration services at Steelcase, Inc., an R/3 site in Grand Rapids, Mich.

"Previously when you signed up for a SAP class, it was all about the functions that could be executed in a particular module. But business doesn't evolve in vertical silos called purchasing and financing," he said.

SAP previously required that all customers attend its in-house R/3 training course for eight to 12 weeks. Now, users can choose to train with SAP or any one of several SAP implementation partners — including IBM and Andersen Consulting — which SAP has licensed to use the new R/3 materials.

New SAP training curriculum
INTRODUCTORY LEVEL
● R/3 management overview
● Project start-up workshop
● R/3 architecture and integration
INTERMEDIATE LEVEL
● Customer order management
● Procurement
● Human resources management
● Manufacturing planning
● Manufacturing execution
● Financial/management accounting and reporting
ADVANCED LEVEL
● Advanced topic workshop
● Industry seminars
● Self-directed reference and training

Middleware choices open up

By Frank Hayes

Slowly but surely, users are getting all the pieces they need to build object-oriented distributed applications.

This month, Hewlett-Packard Co. is rolling out Orb Plus, an object middleware system that should make it easier for developers to build applications that are split up among several machines.

Orb Plus, which costs $3,000 per developer and $500 per user, runs on Windows NT and versions of Unix from HP and Sun Microsystems, Inc. But Orb Plus also conforms to the Object Management Group's Common Object Request Broker Architecture (CORBA) Version 2, which means the HP middleware can communi-

company is building a CORBA-based object infrastructure.

HP middleware users have a wealth of choices. CORBA-based object middleware systems are already available on HP's HP-UX version of Unix from several other vendors, including Digital Equipment Corp., Iona Technologies Ltd., Expersoft Corp., PostModern Computing Technologies, Inc. and ICL Ltd. IBM has ported its System Object Model object middleware to HP-UX, though that product hasn't been released.

All those products were designed to interconnect, but different vendors' CORBA-compliant middleware can differ radically. "Digital's ObjectBroker [middleware] is very complete and very complex. Iona's Orbix is very simple and easier to use," said Pierre Pureur, vice president at Republic National Bank of New York. The bank uses both products.

Most CORBA middleware was designed for C++ programming, which is still a specialty skill in many corporate information systems departments. Some object middleware vendors, including IBM and Iona, are adding support for Cobol, Smalltalk, Ada and other languages.

"From a productivity standpoint, it was very important to us to stay within our native development environments," said Peter Weinstein, a consultant in Windsor Locks, Conn. Weinstein helped develop a distributed application written half in Cobol and half in C++.

Another consideration: Most CORBA middleware was designed only for TCP/IP networks. Orb Plus can also work with networks using the Open Software Foundation's Distributed Computing Environment.

Object middleware market

DIGITAL	33%
IONA TECHNOLOGIES	25%
IBM	17%
EXPERSOFT	14%
POSTMODERN COMPUTING TECHNOLOGIES	6%
HEWLETT-PACKARD	3%
ICL	3%

Total 1995 market: $42 million

* Does not equal 100% because of rounding

Source: Standish Group International, Inc., Dennis, Mass.

cate with similar systems that run on other platforms.

That ability to connect with other vendors' object middleware is crucial to corporate developers. "We are a very large company with many different kinds of systems — you name it, we've got one. We need an architecture that many vendors have bought in to," said Carol Burt, technical director at BellSouth Telecommunications Corp. in Birmingham, Ala. The

Solutionsoft Corp. has introduced HelpBreeze 2.0, a help authoring tool.

HelpBreeze 2.0 is an add-on to Microsoft Corp.'s Word 6.0 or 7.0. According to the Sunnyvale, Calif., company, it offers full support for creating 32-bit Windows 95 and Windows NT help files and 16-bit Windows 3.1 help files in an integrated authoring environment.

HelpBreeze 2.0 visually displays help elements, including graphics and embedded buttons, instead of compiler placeholder codes. It includes a range of point-and-click tools for creating the elements available in Windows 95 and NT help files. It also includes an emulation Dynamic Link Library, a WinHelp add-in that lets Windows 3.1 help files employ many of the new Windows 95 and NT features. HelpBreeze 2.0 has a utility that can add direct World Wide Web access to any 16- or 32-bit help file or application.

HelpBreeze costs $349. More information is available at Solutionsoft's home page at http://www.solutionsoft.com.

▶ **Solutionsoft**
(408) 736-1431

CAD Systems Unlimited, Inc. has introduced Slick 4.0 for Windows, a general-purpose viewing utility for Windows users.

According to the Santa Clara, Calif., company, Slick 4.0 for Windows is fully integrated file management software that displays Autodesk, Inc.'s AutoCAD drawings, Internet Hypertext Markup Language files, and word processing, spreadsheet and database data files. It was designed as a one-product tool for companies with corporatewide file sharing.

Slick 4.0 includes features for viewing, redlining, raster file conversion and printing. It has a built-in database for tracking files. It runs under Microsoft Corp.'s Windows 3.1, Windows 95 and Windows NT.

Slick 4.0 costs $195 per single-user copy. Network versions are available.

▶ **CAD Systems Unlimited**
(408) 562-5762

Gamma Research, Inc. has unveiled MoreMem 4.0B.

According to the Huntsville, Ala., company, MoreMem 4.0B is a Windows memory utility that lets users safely load applications simultaneously and use the existing RAM on a PC. It gives users point-and-click task switching and enables more applications to load simultaneously without compression techniques or memory-management routines.

MoreMem 4.0B features a set-up dialog box and displays user-specified icons. It also terminates unresponsive applications and has a quick-exit Windows button. It runs under Microsoft Corp.'s Windows 3.x and Windows 95.

MoreMem 4.0B costs $40.

▶ **Gamma Research**
(205) 533-7103

Poet's object DBMS supports OLE 2.0
Poet Software Corp. in San Mateo, Calif., has announced a new version of its Poet object database management system. Poet 4.0 now lets applications built with Microsoft Corp.'s Visual Basic access the object database. It supports OLE 2.0 for access to other tools, such as Powersoft Corp.'s Power-Builder and Borland International, Inc.'s Delphi. Poet 4.0 Personal Edition costs $998; pricing for a professional package starts at $4,998. It will ship for Windows, Novell, Inc.'s Net-Ware and SunSoft, Inc.'s Solaris next month. Releases for Apple Computer, Inc.'s Mac OS, IBM's OS/2 and AIX, Hewlett-Packard Co.'s HP-UX and Silicon Graphics, Inc.'s Irix will be available later this year.

Willows licenses Borland C++ libraries
Willows Software, Inc. and Borland International, Inc. said Willows will license Borland's ObjectWindows Library (OWL) C++ class libraries for use with Willows' Twin tool set for porting Windows software to other platforms. Saratoga,

Calif.-based Willows will include OWL with its development system, which costs $250 per year. Willows' Twin supports recompiling software that was designed for Microsoft Corp.'s Windows 3.1 to run on other platforms, including Macintosh and Unix.

Spider speaks Java
A development tool claimed to be the first to generate Sun Microsystems, Inc.'s Java programming language has been announced by Spider Technologies in Palo Alto, Calif. With NetDynamics, developers use a fourth-generation language to create World Wide Web applications that can access any database management system that is compliant with Microsoft's Open Database Connectivity standard. Users don't need to learn Hypertext Markup Language or Java to use it. Set to ship by mid-May, NetDynamics will list at $1,295 and up.

The name game
Bachman Information Systems, Inc. in Burlington, Mass., which last December bought out Providence, R.I.-based Cadre Technologies, Inc., has announced a name

change. The combined company, based in Burlington, is now called Cayenne Software. The company also plans to announce a new version of Cadre's ObjectTeam application development system that will let developers generate applications in Java.

Image databases get more functions
Object database management system vendor Object Design, Inc. in Burlington, Mass., became the second vendor to let users add, subtract, index and retrieve images based on content. Object/relational DBMS vendor Illustra, a division of Informix Software, Inc., was the first to do so. Both firms licensed their technology from Virage, Inc. in San Mateo, Calif. Object Design claims its Image Object Manager is faster and more easily extensible than Illustra's image DataBlade.

IBM alliance
IBM and Simulation Sciences, Inc., a Brea, Calif.-based software developer, have agreed to develop and deliver application software and services aimed at petroleum refiners and petrochemical firms.

The Enterprise Network

No clamor for wide-area ATM

U.S. ATM service market		U.S. frame-relay service market
$11M	1994	$186M
$28M	1995	$556M
$62M*	1996	$1.13B*
$129M*	1997	$1.78B*
$242M*	1998	$2.45B*

*Projected
Source: Vertical Systems Group, Dedham, Mass.

By Bob Wallace

Wide-area Asynchronous Transfer Mode (ATM) services are still far from mainstream more than three years after they were introduced.

Although ATM wide-area network services are used by some of the country's largest corporations, universities and research organizations, the much-ballyhooed services have yet to be embraced by the rest of corporate America.

That's because users are moving instead to another WAN service, frame relay (see chart). Frame relay is far cheaper, is based on fully mature technology, can be used with low-cost networking equipment and offers big savings because leased lines can be cast off.
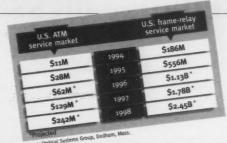
Nearly all ATM use to date is by the biggest firms with the most bandwidth-hogging data applications: imaging, multimedia, high-definition television and graphics-based visual simulation.

"Frame relay is much more efficient for purely data applications than ATM," said Christine Heckart, director of broadband consulting at TeleChoice, Inc. in Verona, N.J. "It's best for the user and the carrier to stay with frame [relay] rather than go through a huge upgrade just for speed."

Frame relay long ago topped out at 1.544M bit/sec., but that wasn't a problem because most users needed only 56K, 128K or 256K bit/sec. speeds. For its part, ATM — as it was originally introduced — ran at 45M bit/sec.

But most users simply don't have bandwidth-intensive applications that require ATM WAN links.

"We use a frame-relay link from the U.S. to our headquarters in Copenhagen to carry E-mail and limited file transfers," said Ken Martig, systems administrator at Zymogenetics, Inc. in Seattle, which tests and manufactures insulin and other pharmaceuticals. "We are a long way from even looking at ATM in the wide area." The company uses X.25 connections outside the U.S.; frame relay isn't widely available internationally.

To extend the life of their frame-relay services, two carriers — LDDS World-Com and MFS Datanet, Inc. — recently began offering frame relay with a top speed of either 3M bit/sec. or 6M bit/sec. Analysts agreed that this is evidence that ATM services aren't selling like hotcakes; the new frame-relay services came well after many of the same carriers had begun offering ATM at T1 speeds of 1.544M bit/sec., vastly reduced from the original 45M bit/sec.

Nonetheless, ATM at T1 speeds is inefficient because it chews up lots of bandwidth for overhead and requires special networking equipment.

One high-profile ATM user said, do as I say, not as I do. "Frame relay supersedes everything out there today, including T1 ATM, when it comes to what's the best buy," said Lance Boxer, chief information officer at MCI Communications Corp., which sells ATM service. "ATM vendors and products aren't stable, and there isn't yet integrated network management and billing." Boxer said ATM has worked well as a way to aggregate super high volumes of traffic between MCI's largest sites.

Because ATM is a more complex service than frame relay, Boxer said it requires different skills to manage the network, perform maintenance and handle problems.

Perhaps the biggest user concern is equipment costs.

Beth Gage, a broadband consultant at TeleChoice, said users can buy frame-relay access gear for as little as $2,000 to $10,000, depending on the features needed, or $25,000 for a high-end router or low-end frame-relay switch.

By comparison, the cheapest ATM access device costs roughly $7,000, an ATM router can cost $45,000 and ATM switches range from $30,000 to $150,000. All figures depend largely on configuration, Gage said.

3-D views let network managers see bottlenecks or even subtle changes more clearly

Managers ask, '3-D or not 3-D?'

By Patrick Dryden

Management tools are taking on a new dimension — literally — to help overloaded operators monitor complex networks, systems and applications. But not all information systems managers want this kind of help.

Three-dimensional interfaces promise to give network and systems operators a higher-level view to detect problems or even subtle changes. In most operations centers, consoles scroll text, update statistics in charts or graphs and change the color of lines, dots or icons to warn operators about status changes. But alerts can get lost in the clutter.

With the tools' new look, operators could orient themselves by viewing physical network components on each floor of a building, for example, or by modeling a virtual network created to support a business process. They could see a router swell in size while forwarding more packets and watch changes in the traffic flow among systems running a key application.

"3-D graphics could simplify all the events we must track, represented now by lines of messages across the console with only color as an identifier," said Steve Rees, director of computer services at Tektronix, Inc. in Wilsonville, Ore.

Rees runs Unicenter systems management software from Computer Associates International, Inc. to monitor 55 Unix servers that support about 5,000 interactive users. He said he sees potential in Unicenter: The Next Generation (TNG), CA's replacement version — in beta test now — that offers sophisticated views into resources through a 3-D interface.

"By making operators quickly aware of changes, I can get more mileage out of my staff — and that helps me cope with a shrinking management budget," Rees said. He said he hopes Unicenter: TNG will make some lower-level staff more effective, thereby helping the data center meet round-the-clock monitoring needs.

Instead of showing separate resources, Unicenter: TNG provides business process views that involve all network, system, application and database resources.

Console operators will visualize these relationships through a "real-world interface" because "humans learn and remember better by images than by data," said Marc Sokol, CA's vice president of product strategy.

Monitoring network performance statistics by image looks more appealing at Texas Instruments, Inc. now that operators must deal with reports from dozens

Tools will help secure Exchange messages

Outside communication raises concern

By Tim Ouellette

New tools from third-party developers to beef up the security in Microsoft Corp. Exchange Server are due to hit the streets this year.

The add-on tools will provide security to Exchange messages traveling beyond the security borders provided by Windows NT Server in an Exchange domain. Exchange, Microsoft's recently released messaging software, integrates administration and security with Windows NT Server.

Security is an issue because Microsoft is positioning Exchange as a mission-critical messaging backbone for large organizations and is parading major user sites such as Nabisco, Inc., The Boeing Co. and Shell Oil Co.

As companies use messaging for critical business applications and communicate more with the outside world, security issues will arise, analysts warned.

Life beyond the borders

"A lot of security issues are extremely important when you look out to the public environment," said Gary Rowe, principal at Rapport Communications in Roswell, Ga. "You aren't sure exactly what route your message will take on the Internet."

Deming Software in Bellevue, Wash., will ship Secure Messen-

Security Exchange

Third-party vendors are adding the following security features to Exchange for users who send messages over the Internet or an intranet

Support for the Secure MIME Internet standard, so the message can be read only by the recipient

Monitoring and service-level reporting for an entire Exchange system

Encryption of messages transmitted over internal networks or the Internet

Support for VeriSign's Digital ID message authentication

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ger for Microsoft Exchange, which hangs its hat on the growing popularity of the Secure Multipurpose Internet Mail Extension (MIME) protocol for Internet messaging.

Secure Messenger deals with "interoperable security outside of the Exchange domain," said Deming President Bob Dickinson.

For current Microsoft Mail users migrating to Exchange, Fischer International Systems Corp. offers PrivaSee. This software uses public- and private-key certificates — which are themselves software that scrambles and unscrambles messages from certain users — to authenticate message delivery and prevent alteration of messages en route. The Naples, Fla., firm plans an Exchange version of the software this year.

"Organizations should at least consider security [when rolling out new messaging systems] and plan for the types of applications that should be secure," Rowe said. "It is real easy to put security issues on the back burner until you get the rest of the house in order or until a problem comes up."

Dickinson and analysts agreed Exchange provides strong security within an Exchange domain, especially because the software relies on Windows NT Server for secure log-ons, access control to folders, security IDs and audit reports of Exchange-related security events. Exchange also supports digital signatures and encryption technology from RSA Data Security, Inc.

Secure Messenger adds RSA technology, along with support for VeriSign, Inc.'s Digital ID, to ensure message routing over the Internet. Secure Messenger will ship May 15 for $69 per unit.

Mainframe data link's scalability improved

By Laura DiDio

Proginet Corp. has added more zip to its Fusion package, which lets Microsoft Corp. BackOffice users access IBM mainframe-based data.

Version 2.4 of Fusion Transfer Management Software improves performance and scalability over the previous Windows 95 Fusion package, which shipped last July. Fusion 2.4 for NT, for example, can perform up to 100 concurrent file transfers between Windows NT Servers and IBM mainframes, said Joe Mohen, Proginet's chief technical officer.

Filling a need

A recent study by Meta Group, Inc. found that nearly 75% of all corporate data still resides on mainframes, but the majority of users and application software is LAN-based.

This is especially important for large firms such as Ingram Micro Corp. in Santa Ana, Calif., which beta-tested the Fusion 2.4 software. Bill Maddox, the distributor's network administrator, said Fusion appealed to the company because it gave users at remote branches fast, secure and seamless access to corporate data.

Fusion's enhancements also let BackOffice users integrate IBM mainframe data into their desktop PC applications, databases, spreadsheets and documents.

Other new features in Fusion Version 2.4 include the following:

● Electronic packaging that lets administrators monitor and manage Fusion 2.4 using Microsoft's Systems Management Server.

● OLE custom controls that enable PC users to access legacy mainframe data using Microsoft's Visual Basic or Powersoft Corp.'s Power-Builder programming languages and tool kits. Previously, businesses were required to write proprietary application programming interfaces.

Legacy data access

● A graphical user interface management console that allows centralized administration and management of all NT Servers that are transferring data to and from the mainframe.

● Security enhancements, including the ability to authenticate file transfers between IBM mainframes and individual domains or groupings of users that share a common security base.

Fusion Transfer Management Software for NT Version 2.4 is shipping. Pricing for the Fusion Server Software starts at $9,995. The Fusion Power Station Client Software costs $695. The Fusion Administrator software costs $1,995 for four server licenses. Pricing for the Fusion Transfer Server for the OS/390 ranges from $18,000 to $145,000, depending on configuration.

New Products

EEC Systems, Inc. has introduced SuperDisk-NT.

According to the Sudbury, Mass., company, SuperDisk-NT lets systems managers create a RAM disk on any system that is capable of running Windows NT. The technology was designed to allow the creation of a RAM disk that uses up to 80% of the available physical memory on the machine for use as the RAM disk. Because the data is stored in RAM, no mechanical movement of the disk heads is required; access was designed to be instantaneous.

SuperDisk-NT lets the RAM disk be accessed from anywhere on a Windows NT network. It supports data mirroring, letting users place data on the RAM disk and have it mirrored to a physical disk or a physical disk partition. If a power failure or system crash occurs, the software restores the contents of the RAM disk.

Pricing starts at $500.
▶ *EEC Systems*
(508) 443-5106

On Technology Corp. has announced DaVinci SMTP EMail.

DaVinci SMTP EMail consists of four Novell, Inc. NetWare Loadable Modules that are loaded on a NetWare 3.x or 4.x server. According to the Cambridge, Mass., company, DaVinci SMTP EMail was designed for NetWare environments that need to extend a LAN electronic-mail system to the Internet without continuing reliance on proprietary messaging transports, an IP stack and IP addresses for every desktop.

The product includes an implementation of Post Office Protocol-3 (POP-3) that runs over both IP and IPX, letting established NetWare environments avoid a shift to TCP/IP on the LAN. The DaVinci POP-3 server is integrated with Simple Mail Transfer Protocol (SMTP), forming a client/server environment that provides immediate delivery of E-mail.

Pricing for the DaVinci SMTP EMail system starts at $999.
▶ *On Technology*
(617) 374-1400

The Linksys Group, Inc. has rolled out PCMCIA LANmodem Card.

According to the Irvine, Calif., company, PCMCIA LANmodem Card was designed for mobile users equipped with a Type II PCMCIA expansion slot and allows concurrent operation of a 10Base-T Ethernet LAN adapter with a 28.8K bit/sec. fax/modem. It features standard 32-bit plug-and-play compatibility that lets the combo adapter operate in Windows 95 and Windows NT environments.

Pricing for PCMCIA LANmodem Card starts at $499. For more information, see Linksys' home page at http://www.linksys.com.
▶ *The Linksys Group*
(714) 261-1288

BGS Systems, Inc. has released Best/1-Visualizer for LANs, a performance measurement and analysis system.

According to the Waltham, Mass., company, Best/1-Visualizer for LANs gathers and analyzes data for heterogeneous networks, networked servers and user and network applications. It provides information on poor response times and utilization issues as well as tracks performance and usage throughout the LAN.

Best/1-Visualizer for LANs rec-ognizes TCP/IP, IPX, Apple Computer, Inc. AppleTalk, Digital Equipment Corp. DECnet, Banyan Systems, Inc. Vines and SNA protocols. Pricing starts at $24,500.
▶ *BGS Systems*
(617) 891-0000

Digital Link Corp. has announced WANview PC, a Simple Network Management Protocol product that extends PC-based LAN network management capabilities to wide-area network devices.

According to the Sunnyvale, Calif., company, WANview PC lets network managers see inside the entire network, monitor performance and track historical performance data.
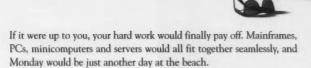
Pricing for WANview PC starts at $199.
▶ *Digital Link*
(408) 745-6200

Managers ask, '3-D or not 3-D?'

of probes, said Bob Childress, network management analyst at TI in Dallas.

In the test lab, Childress was skeptical of the Visualizer add-on to NetScout Manager remote-monitor analysis software from Frontier Software Development, Inc. in Chelmsford, Mass.

But out on the noisy network, all the charts don't fit on a console. "Visualizer could pay off by showing abnormal conditions right away. We can see an object or a link grow, then zoom in on it quickly," Childress said.

However, these evaluators will wait to see how much power and configuration such 3-D consoles require.

Overlaying maps and graphics for a network management display took too much effort for administrators at Delmarva Power & Light Co. in Newark, Del. They tried to customize the Spectrum console from Cabletron Systems, Inc. with backdrops to the icons but eventually gave up.

"Creating that graphical view required quite a bit of manual intervention, then add-

ed yet another task whenever the network would change," said John Scoggin, staff technical consultant of advanced technologies at the utility. "For now, we'll stick to the straight-line view of 'knee bone connected to the thigh bone.'"

Doubts remain

Users of OpenView, the leading network management platform, aren't clamoring for new interfaces, according to Gordon MacKinney, program manager at Hewlett-Packard Co.

"The 3-D interfaces are visually sexy, but their practical side remains untested," MacKinney said. "We poll the hell out of our user group, and this never really popped up as a requirement."

But Sokol predicted that rendered 3-D interfaces will be common in three years, not just for management tools, but also for general applications. "A 3-D display looks alluring, but is really a learning vehicle," he said.

Briefs

Firm unveils promo
Pacific Bell in San Francisco announced a 90-day promotion under which users can save $2,200 when they buy FasTrak, a bundle that provides users frame-relay access to the Internet. The bundle regularly costs $5,200. FasTrak includes a 128K bit/sec. frame-relay link, a Cisco Systems, Inc. router and a channel/data service unit used to access the frame-relay link. Also available as part of the deal are on-site equipment configuration and installation services. Officials at Pacific Bell, which began providing Internet access last fall, said its service has 275 customers.

Service firm merges units
Intelligent Electronics merged its professional services and internetworking subsidiaries into one network integration and support provider called **XLConnect, Inc.** Heading the services company in Exton, Pa., is CEO Richard Ellenberger, formerly president of business sales and service at MCI Communications Corp. XLConnect has a staff of more than 1,000 in 26 branch offices.

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How Business Does Business
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The Internet

Business users will shape future of the Internet, **57**

Transaction wares cozy up to the 'net

Data 'traffic cops' to boost on-line trading

By Craig Stedman

Transaction processing monitors are shaking hands with the Internet, and several customers said this new relationship could help them do real business on-line.

Security on the 'net remains a concern, and in many cases, electronic commerce plans are still at the gleam-in-the-eye stage. But users and analysts said trans-

Transaction monitors, *such as BEA Systems' Tuxedo (shown here), act as traffic cops that direct commands and data*

action software could scale up applications to the heavy-volume levels expected on the Internet and corporate intranets.

Directing traffic

Transaction monitors act as traffic cops that direct commands and data requests to the right places in a network. They provide features such as load balancing, two-phase commit and the ability to roll back failed transactions. All those functions "are very important to us," said Gordon Divitt, president of FundServ, Inc. in Toronto.

FundServ uses BEA Systems, Inc.'s Tuxedo software to route buy-and-sell transactions among brokers and mutual fund companies in Canada. "We link up two different companies in different parts of the country, and there are a lot of places along the way where a transaction can get lost or garbled," Divitt said.

FundServ needs to be convinced that the Internet is secure before it goes beyond its own private network, he said. "But I think it's pretty inevitable that we eventually will need interfaces to the Internet," he added.

Bull or bear?

'net-based stock traders tout convenience windfall, security deficit

By Thomas Hoffman

On-line trading has been a lucrative venture for the few start-up brokerages that have leaped into the fray in the past few months. But security concerns and slow response times on the Internet have kept more established investment bankers from plunging into cybertrading.

Consider E Trade Securities, Inc. (http://www.etrade.com). In the first seven weeks after the Palo Alto, Calif., electronic brokerage launched an Internet-based trading service, cyber-revenue grew to 13% of its total sales, based on estimated annual revenue of about $50 million. In February, cyber-revenue was $540,000.

Customer costs have dropped from $40 per trade in 1992 to $20 per trade today, said Kathy Levinson, E Trade's president and chief operating officer.

Cybertrading continues to mean battling significant technological hurdles. Security and firewall protection are the obvious ones, with millions of dollars of shareholder liability at risk. But bandwidth constraints and slowing Internet response times also are obstacles to on-line trading.

"We're in a business where speed counts," said Stephen Killeen, director of marketing at PC Financial Network, a Jersey City, N.J.-based on-line discount brokerage unit of Donaldson, Lufkin & Jenrette, Inc. PC Financial offers electronic trading over America Online, Prodigy and other commercial services.

Lombard's ... Macilwaine: His company receives 15% of its trading revenue from on-line trading

RICHARD MORGENSTEIN

Speed and security aren't issues on the commercial networks, Killeen said. But they are on the Internet.

The World Wide Web may not get faster, either. The Web's network topology, TCP/IP, "is not designed for speed," said Mark Hardie, a technology analyst at The Tower Group, a financial services consultancy in Wellesley, Mass. "You're better off calling brokers directly over the phone rather than sending orders over the Internet, crossing your fingers and hoping it got there."

And because no single body governs the Internet, there's no telling whether

Burlington Coat Factory, Inc. also is still exploring plans for doing business via the Internet. By year's end, it hopes to launch a Tuxedo-based bridal registry that would let people buy wedding presents on-line, said Michael Prince, chief information officer at the Burlington, N.J., retailer.

For electronic merchandising, "you need to put in an architecture that's capable of scaling, and that falls into the strengths of transaction monitors," Prince said. Down the road, Tuxedo could provide a more reliable alternative to the electronic data interchange service

Making connections

These vendors plan to link transaction processing monitors to the Internet and Java

Vendor	Monitor access	Internet interface	Java
BEA Systems	Tuxedo	Fourth quarter	Fourth quarter
IBM	CICS	Now	Second half
NCR	Top End	Second quarter	Second quarter
Transarc*	Encina	April	April
UniKix Technologies	UniKix	July	Now

*IBM subsidiary

Businesses will put more multimedia on 'net

By the turn of the century, the typical Fortune 500 company will be using the Internet to provide very broadband communications for combining voice, data and video on intranets. That is part of the vision communications industry veteran Donald M. Heath brings to his new position as president and CEO of the Internet Society. Heath recently spoke with Computerworld *senior editor Gary H. Anthes about the Internet and the society that nurtures it.*

Donald M. Heath, *president and CEO of the Internet Society*

CW: What's the mission of the Internet Society?
Heath: It is a little lofty. It is to preserve the health and integrity of the Internet globally. We do not represent a single faction, so we tend to focus on the underlying technologies and architecture.

CW: How can the society do that?
Heath: The Internet Society has to ensure that the Internet is not fragmented and pulled apart. I see the Internet Society getting more involved with those big players, such as Microsoft, Sun Microsystems and America Online, that strongly influence what's happening on the Internet. The Internet Society must find ways to work with these companies to understand what their thinking is and to educate them. To date, we have not been on the commercial side; we have focused on the academic and scientific community.

CW: What are some of the challenges facing the Internet?
Heath: The more people you put on it, the more it's going to choke. Demand for bandwidth is growing at 100% to 150% a year, and by 2000, some Internet backbones will be carrying 10G bits per second. Who says, "Let's upgrade the backbones?" It's all the people using it that will force the issue.

CW: How will the typical Fortune 500 company use the Internet in 2000?
Heath: Multimedia will be a major thing. Corporations will use very broadband communications for combining voice, data and video on their internal intranets. That will drive what's on the Internet more than anything as these firms begin to communicate with suppliers and other stakeholders.

CW: Is there a role for government to ensure things such as openness and universal access to the Internet?

Heath: No. Forget regulation and by everybody. For example, there's a group campaigning against voice on the Internet. But the Internet will be multimedia, and market forces will prevail. And you cannot regulate what goes over the Internet.

CW: What will happen to 'net use prices?

Heath: I think prices can come down and probably will. Market demand will force technology to meet [users'] price needs.

CW: Will companies increasingly establish virtual private networks over the Internet to avoid the more costly public switched network?

Heath: Absolutely, and that will foster more beneficial competition among [telecommunications services providers]. We will see these virtual private networks used for multimedia. The advantage will be lower cost and ease of use. If you are on the Internet for one purpose, without much hassle you can use it for multiple purposes.

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On-line trading

or when these technical challenges will be addressed.

Nevertheless, some of the more well-established brokerages are expected to begin cybertrading later this year. Most of the industry's heavyweights believe Internet security standards should become widely available by early next year. Charles Schwab & Co. is pilot-testing an Internet-based trading site with a few hundred customers across the U.S. Schwab expects to extend these services for general availability by May, said Gideon Sasson, senior vice president of electronic brokerage technology at the San Francisco-based brokerage.

Schwab is using Secure Socket Layer (SSL) and RSA encryption technologies with Netscape Communications Corp.'s Commerce Server software to protect its IBM RS/6000 Web server, Sasson said. He declined to name the firewall technologies that Schwab is using.

Information systems managers at on-line brokerages such as Lombard Institutional Brokerage (http://www.lombard.com) dismiss the security scare, claiming the encryption capabilities in Netscape's Secure Commerce Server software and other firewall protection are up to the task.

Lombard uses two Livingston Enterprises, Inc. FireWall IRX routers that have built-in filtering logic with the ability to act as a firewall and a router at the same time, said John MacIlwaine, director of information technology at Lombard. It launched a cyberservice in October and gets 15% of its trading revenue from it.

Lombard uses hardware logic at the network level to prevent unauthorized access into its Sun Microsystems, Inc. SPARC1000 Web servers, MacIlwaine said. Netscape's Commerce Server with standard SSL protection is used to encrypt transactions over the 'net.

Transaction wares

that Burlington Coat uses to do business with some of its suppliers, he added.

BEA Systems, IBM and other vendors are adding support for World Wide Web browsers and Sun Microsystems, Inc.'s Java programming language to their transaction monitors (see chart, page 57). While few users have gotten past evaluation or testing, analysts said they expect transaction software to attract a lot of interest as electronic commerce becomes more of a reality.

Working with a transaction monitor can be more complex and expensive than just writing straight database-oriented applications, said John Mann, an analyst at Yankee Group, Inc. in Boston. "You have to add some people who understand this stuff. But your other choice is failure, typically."

The increasingly ubiquitous presence of Web browsers makes them an appealing user interface for some transaction environments. For example, the University of Florida is testing IBM's Internet gateway for CICS as a possible way to give students on-line access to data such as grades and transcripts, said Steve Ware, a systems coordinator at the Gainesville school.

The mainframe-based data can be accessed now only from 3270 terminals, "which most of our students don't have," he explained. "But most of them do have access to Web browsers."

Mass market

The market for distributed transaction monitors totaled $176 million last year, according to preliminary figures from The Standish Group in Dennis, Mass.

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Hong Kong bank revamps
information technology
infrastructure, **64**

U.K. insurance firm picks Psion

By Niall McKay

Prudential Life Assurance Ltd., which with more than 6 million customers is one of the U.K.'s largest insurance companies, is set to trade in its sales staff's mobile telephones for palmtop computers.

The organizers of the effort are replacing some 7,000 mobile phones with Psion 3A palmtops from Psion UK Ltd. They will store up-to-date policy information about the company's range of services on Psion data cards, which will be updated daily over telephone lines.

London-based Prudential had looked at laptop computers, which have been widely implemented in the insurance industry, but found them far too costly.

"With the Psion 3A, we will have recovered our investment in nine months, which is unheard of when investing in new technology," said Richard Deighton, a sales strategist at Prudential.

Prices for the Psion devices range from about $375 to $600, compared with about $2,400 to $3,000 for standard laptops configured for business use.

But Deighton's main concern was usability. "There are two types of people in this world — those who have used PCs and those that have not," he said. A large percentage of the sales staff falls into the second category, he said.

"We did studies, and about 40% of our sales staff did not like the idea of a PC, whereas out of the 7,000 Psions, only two [staffers] opted not to use them," Deighton said.

McKay writes for the IDG News Service.

Psion 3A palmtop

- 1M-byte and 2M-byte configuration
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Brief

Blunder delays direct-deposit checks

A computer operator's gaffe caused 800,000 direct-deposit paychecks and Social Security checks to be posted a day late at **Bank of America**. The error occurred after a technician in Los Angeles failed to complete a series of system commands after making programming changes on March 30. The computer error was caught and deposits were posted by 2:30 p.m. April 2.

Enter-gized

New Orleans utility warms to customer information system revamp

By Thomas Hoffman

Entergy Corp. is trying to beat the heat with a new client/server customer information system (CIS) slated to be switched on this June.

The New Orleans-based utility's revamp of its mainframe CIS is a low-cost, simplified alternative to the multimillion-dollar, object-oriented projects that Florida Power Corp. and Duke Power Co. have toiled on [CW, Feb. 26], industry pundits said.

Deregulation of the utilities industry will eventually allow residential and commercial customers to choose their power supplier. To improve services and help retain customers, utilities such as Entergy are re-engineering processes and systems in their call centers and customer service departments.

Entergy is relying on a PowerBuilder front-end graphical user interface (GUI) tool kit from Sybase, Inc. to get its system in place before sweltering southern temperatures drive power consumption for air conditioning to peak levels.

Entergy's call center volume typically soars to more than 1.3 million calls per month in July and August, a 30% increase from normal levels, said Ron Phillips, Entergy's vice president of information technology.

Call center and customer service agents have been quick to learn the new graphical Agent Information System — it has taken them one month to become proficient on it, compared with nine months on the former mainframe-based "green screen" system — and the system has cut processing time by 80%.

On the old system, agents used IBM 3270-based terminals. They would spend 15 minutes toggling between green screens to determine customer eligibility for payment extensions, said Lynn Bankston, a senior

> The mainframe "took too many transactions … to provide [adequate] service levels."
>
> **Ron Phillips,**
> *Vice president, information technology*

> "We didn't think we'd get enough return on [multi-million-dollar] investments to justify the costs."
>
> **Ray Johnson,**
> *Director of operations and customer/ marketing systems*

customer service representative at Entergy's Baton Rouge, La., office. Using the PowerBuilder GUI screens, agents will be able to make a decision within three minutes, said Ed Krause, the Agent Information System project manager.

"This system removes a lot of those processes for us," Bankston said.

Entergy's recent consolidation of 60 local offices to six throughout the four Gulf states it serves put another burden on the call center. Because most of Entergy's 2.5 million customers could no longer walk in to local offices with billing questions, "we had to replace that face-to-face communication with additional call-center functionality," said Ray Johnson, director of operations and customer/marketing systems at Entergy.

Scouting competition

Johnson said Entergy hired Andersen Consulting last year to review how other utilities and customer service-oriented organizations were tackling their CIS overhauls.

"We didn't think we'd get enough return on [multimillion-dollar] investments to justify the costs" of an object-based CIS system, Johnson said.

Most other utilities' call centers have been burdened by brittle 20-year-old CIS systems, but Entergy's IBM IMS-based CIS system was installed in the mid-1980s and remains useful.

Entergy's 800 call center agents will also get Dell Computer Corp. PCs running Windows. Agents will access IBM 3090-mainframe-based customer information from an Oracle Corp. relational database via Sun Microsystems, Inc. SPARCserver 1000s. The SPARCservers run Sun's Solaris Unix operating system.

Most utilities have legacy systems and are only beginning to explore client/server technologies — and are finding them to be "pretty confusing," said Judith Hurwitz, president of Hurwitz Group, Inc. in Newton, Mass. A GUI approach that uses a mainframe "can give them a little breathing room," she noted.

Web deliveries

"It may have its pluses and minuses, but the Internet is the vehicle for better, faster communication than shuffling paper and playing phone tag," said Paul Schlessinger, an analyst at Donaldson, Lufkin & Jenrette Securities Corp. in New York.

"These companies need to be there," he added.

UPS beat FedEx to market last month with a Web site that can handle package scheduling and pickup from start to finish.

That means anyone in a major metropolitan area who has a box to ship can surf to the UPS Web site, check delivery routes, calculate rates and schedule a pickup. Payment is made off-line. Eventually, payment will be done on the Web by credit card or, for large, regular customers, via a tab tracked with on-line purchase orders.

Such a system requires data collected at the external Web site to be shunted in-house, melded with UPS's IBM mainframe and AS/400 scheduling system and spit out in a Web-readable form for the waiting customer. UPS's information systems group has built connectors to translate Hypertext Markup Language and other Web languages to formats that are compatible with IBM databases.

The tough part, Hoffmann said, is designing a system that flows smoothly between the public Internet and the secured intranet realm.

UPS, like FedEx, offers PC software to customers to schedule package handling over a private network. But that experience falls short when the Internet weighs in, Hoffmann said.

"Thinking this through, with proper security and getting the right networking connections to happen at an acceptable speed — that's what is more of an issue," Hoffmann said.

FedEx, which has already invested $100,000 in Web site development, has started testing a similar soup-to-nuts package system with some large customers, but Hamilton declined to say with whom or at how many sites. A bigger, public beta test will happen shortly, he said.

Besides, he said, FedEx has bigger plans.

One scenario would let software agents build custom Web pages for repeat customers. Another system would let FedEx transmit shipping and logistics data among customers who, in turn, would do business with each other. Results from a customer survey under way will set a timetable for development.

Trouble brewing

But as enticing as the Internet appears, using the network will produce some potentially ugly side effects.

For example, consumers will be able to more easily compare package delivery prices by pointing browsers to a couple of Web site addresses. That means FedEx, UPS and other delivery rivals may have to continuously undercut one another's prices for similar services.

Meanwhile, UPS and FedEx run neck-and-neck in other respects. Each offers Web-based package tracking functions that let users type in a package number and find out where it is. FedEx users track 13,000 packages daily that way; UPS customers track 10,000 packages per day, triple the packages tracked that way after the feature was launched five months ago.

"User response is telling us this isn't experimental anymore. We have to take this stuff very seriously," Hoffmann said.

Hamilton agreed: "We're on a mission."

Hong Kong bank centers on Win NT

Windows-based home banking was factor in choice over OS/2 and Unix

By Emily Gin

To improve customer service, Hong Kong-based First Pacific Bank Co. is revamping its front-end teller and customer service systems.

As its first step toward modernizing its entire information technology infrastructure, the bank will install Microsoft Corp.'s Windows NT and Unisys Corp.'s Navigator object-oriented banking application across its 26 branches, according to Egbert Chan, the bank's vice president of information technology.

As part of a wide-area network, new teller and customer service LANs in each branch will be connected to First Pacific's two IBM ES/9000 mainframes by Cisco Systems, Inc. routers and frame-relay links from Hong Kong Telecommunications Ltd.

First Pacific also will implement Microsoft's BackOffice suite, which includes SQL Server, SNA Server, Systems Management Server and Microsoft Mail Server.

The pilot rollout of the Windows NT-based LAN and WAN system is expected to go live at one or two branches during the fourth quarter, Chan said.

First Pacific spent several months evaluating Windows NT, IBM's OS/2 and the Unix platform before finally deciding on NT.

"In our internal evaluation, NT performed the highest, and we found it more reliable. The other two are good products, but we found that NT met our needs better," Chan said.

International strategies

Convenience factor

Another consideration that pulled NT ahead was First Pacific's future plan to offer home banking. "We found that more people use the Windows platform in their homes, which will make it easier for us to expand to home banking in the future. NT just allows us more flexibility to expand to other services," Chan said.

Tellers and customer service representatives in all First Pacific branches currently use IBM 4700 dumb terminals, which are connected to the ES/9000 mainframes.

Running on the mainframes is a banking application called Systematics, which handles all the core banking functions such as retail banking operations, loans, deposits and general ledger.

Chan, who this week will meet with his staff and Microsoft representatives for the first time to discuss the migration plans, said he has some initial concerns about the new network.

"I am concerned about the performance level of the frame-relay line," Chan said. "Will it transfer information between the NT LANs and our mainframe to our expectations?"

This article was excerpted from Computerworld Hong Kong.

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Managing

WATCH YOUR BACK

A Computerworld *survey shows that even veteran CIOs have to juggle both technical and business skills. Lose sight of either, and you're sunk.*

BY ROBERT L. SCHEIER

Torn in two? That might be overstating it, but Stephen Rappaport sure sounds like a man divided.

In one breath, he insists he's not interested in information technology, at least not in "bits and bytes." His real passion, he says, is whether software meets the needs of his customers.

But then he waxes poetic about getting up close and personal with software. "Just having an intellectual understanding of it isn't enough. Technology needs to be understood in your fingers and in your mind," he says, because "software embodies a way of looking at the world, a set of values ... an orientation towards life."

Rappaport isn't crazy, and he isn't alone. A *Computerworld* survey of 100 top information systems executives shows them struggling to master both the technology they oversee and the business they serve.

This balancing act is nothing new, but the stakes are higher because of today's pace of business and technical change and because downsized companies demand faster payback on information technology investments.

"If we fall off either horse, then we failed," says Larry Levin, chief information officer at the American Dental Association in Chicago. "That's when we get knocked off."

The survey results show that CIOs recognize the danger. Fifty-seven percent of those surveyed, regardless of tenure, say their need for in-depth technical knowledge has increased during the past three years. Sixty-four percent, regardless of tenure, say they spend more time on technology today than they did three years ago.

At first glance, there seems to be a generation gap of sorts. Those who have held the top IS job for at least 11 years seem to be more focused on business issues, while those with four years or less on the job seem more focused on technology (see chart next page).

However, many of the apparent differences melted away during interviews with 10 of the respondents. All of them, regardless of experience, say they need a deep understanding of both technology and business issues. What is more important than years on the job is how they define "in-depth" understanding and the particular challenges their companies face.

Rappaport, for example, is a director and chief technology officer at Information Learning Systems, a New Rochelle, N.Y., company that develops software used in customer-service applications. He runs the IS function and is the company's product manager.

Rappaport has been in the job for two years. Typical of his peers, he spends more time on technology issues than he did three years ago and thinks he'll need more in-depth technical knowledge in the future. But at the same time, he says a CIO's personal knowledge of technology is becoming less important than his ability to think as a business strategist.

PETER LACLAMITA

FYI: Sifonis' *Corporation on a Tightrope*, **PAGE 68**

IS tackles the
re-engineering of the
finance function, **PAGE 72**

67

Managing

"The way I understand [software] is different from the programmers," he says. He looks at how the application organizes data and what commands a user must go through to get at it.

Tom Wands is at the other end of the experience scale, but he is trying for the same mix of business and technical understanding. After 11 years as vice president of MIS at Associated Aviation Underwriters in Short Hills, N.J., software such as Notes is becoming more important to him, but at a "macro" level. "I need to know how our underwriters and our claim people do their jobs and match that with what Lotus Notes can do," he says. "The next level of people below me need to think about … how will Notes interoperate with our network operating systems and what the scripting language is like."

Technology overload

The apparent generation gap is also smaller than it seems when it comes to managing information technology (see chart). With the sheer crush of technical change, even newcomers are delegating detailed technology work so they can focus on the business.

John Thompson, who has been vice president of technology at Sales Mark, Inc. in Memphis for about a year, considers himself well-grounded in technology such as relational databases and network design. He's often up at 4 a.m. scanning technical books and magazines, but he insists, "I don't think I have

to know how to do everything I read about." Good IS managers, he says, should rely on specialists for implementation.

Some argue that the business piece of the puzzle gets more important for IS managers as their companies move from basic technology to more strategic information systems. Some also say IS executives are no different from their peers in finance or sales who give up hands-on experience in return for pay and status. But others argue that IS chiefs can't afford to get too far away from hands-on technology.

"The guy on top has to be closer to the action and be closer to the technology in order to be effective," argues Eric Duhon, vice president of technology at Consumer Credit Associates, a credit reporting firm in Houston. No longer can companies afford multitiered development organizations that allow the top IS executive to focus largely on planning or business issues. Managers who don't realize that "will find themselves being retrained to do something else," he says.

But increasingly, for both hardened veterans and eager newcomers, "it's not an either/or" question of business vs. technical knowledge, says Gary Welsh, assistant vice president of systems at the First National Bank of Bethany in Bethany, Okla. "It's both." ∎

Scheier is a *Computerworld* senior editor, management.

SURVEY SAYS . . .

"Recently appointed CIOs regard technology as more important to their overall success than do veterans . . ."

QUESTION: An in-depth knowledge of technology is very important to being a successful CIO.	CIOs with 4 years or less in current post	Those with 11 years or more in current post
	80% AGREE	**55%** AGREE

" . . . the same holds true for managing IS . . ."

QUESTION: The CIO's need for in-depth technical knowledge is becoming more important to successfully managing an IS department	CIOs with 4 years or less in current post	Those with 11 years or more in current post
	60% AGREE	**48%** AGREE

" . . . while veterans said business acumen, more than technical knowledge, will be their key to success."

QUESTION: The CIO's personal knowledge of technology is becoming less important to their personal success than their ability to think as a business strategist.	CIOs with 4 years or less in current post	Those with 11 years or more in current post
	33% AGREE	**62%** AGREE

Source: March 1996 *Computerworld* survey of 100 chief information officers

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F.Y.I.

Executive Track

After a stint at **Silicon Graphics, Inc. (SGI)**, **Ronald P. Davis** has returned to **Fujitsu Computer Products of America, Inc.** in San Jose, Calif., as its new director of information systems. This Fujitsu unit is a supplier of computer peripherals. Davis had been an IS manager at SGI.

George Steinhoff has been promoted to vice president of group systems at **CaliforniaCare Health Plans**, an affiliate of Blue Cross of California in Woodland Hills, Calif. Steinhoff joined the company in 1990 and helped lead the development of its Network Management System, a billing and claims processing system for group customers.

Judith T. Rusch has been named to the newly created position of vice president of systems development at **Kmart Corp.** in Troy, Mich. Rusch, who will be responsible for Kmart's core merchandising systems, was formerly director of store systems at Disney Store, Inc., a division of the Walt Disney Co.

Unisys Corp. in Blue Bell, Pa., has announced that **Linda Hibbs**, formerly chief information officer for the state of New Jersey, has joined the company's information services group as a principal in its social services practice.

Katherine M. Hudson, president and CEO of **W. H. Brady Co.** in Racine, Wis., was elected to the company's board of directors. Hudson is best known in IS circles as the former Eastman Kodak Co. CIO who signed several landmark outsourcing agreements.

Tina Repetto has been promoted to director of systems development at **Standard Microsystems Corp.** in Hauppauge, N.Y.

Hilton Hotels Corp. recently appointed **Francis Joseph Durocher** as senior vice president and CIO. He replaces Terrence P. McGowan, a 25-year veteran of the Beverly Hills, Calif.-based company.

Kenneth A. Bochenski, senior vice president of operations and information services at **Spiegel, Inc.**, accepted early retirement and left the catalog retailer on April 1.

F.Y.I.

IS Manager's Bookshelf

Power trip-up

Corporation on a Tightrope: Balancing Leadership, Governance, and Technology in an Age of Complexity
By John G. Sifonis and Beverly Goldberg
(Oxford University Press, New York; 296 pages, $25)

This book by John Sifonis, a longtime information systems management consultant, and his partner, Beverly Goldberg, is a partial success. Its strength is its novel thesis: To thrive on chaos, your company must directly connect leadership, information technology and governance (how companies divide responsibility, authority and accountability). Unfortunately, the book doesn't pursue far enough the relationship between IS management, leadership and power, thus missing the chance to be a consistently original book.

You can skip the early chapters on complexity theory and "butterfly organizations"; just repeat "everything's changing" and "flexible organizations" 10 times, and you'll get the point.

Chapter 7, "The Art of Accommodation," is an insightful analysis of why IS executives often fail to please top management. The reason: They are disconnected from, or misunderstand, how their companies are governed. This leaves them incapable of responding well to change. A brief case study of Shell Oil Co. shows how one chief information officer responded.

Chapter 8 explores the CIO role. Unfortunately, there's little new in the authors' agenda for CIOs. The same problem mars the following chapters on leadership: They're good summaries of advice you've already read — establish trust, foster leadership and so on.

The authors rally in the conclusion, where the themes finally come together again. Their "principles of balance" include some you haven't heard before.

The bottom line — *Corporation on a Tightrope* is a solid book but a missed opportunity. But if your CEO reads it, you and your IS organization will have a better boss. That's mighty fine consolidation.

— *Allan E. Alter*

Correction

In an article on year 2000 user groups, events and Web sites, "Happy Millennium!" [CW, March 25], an incorrect telephone number was listed for IBC USA Conferences, which is sponsoring "Insurance, Banking & Financial Services: IT Systems Conversion for the Year 2000," June 17-18. The correct number is (508) 481-6400.

Groaners!

Don't you just hate it when your boss delegates some task to you and then says it isn't important?
If you are thinking, "Yes! Yes! I can't stand that!" you would have had plenty of company at the Help Desk Institute's annual International Support Services Conference last month in Reno, Nev. At one session, hundreds of attendees compiled a list of more than 50 managerial demotivators — acts guaranteed to leave staff and lower-level managers fuming. About a dozen *really* provoked a reaction. Here are the ones that provoked the loudest groans, hoots and boos from the audience:

- Reprimanding you in front of your peers.
- Scheduling a meeting and not showing up.
- Taking a "whatever you do isn't good enough" attitude.
- Delegating but not really letting go.
- Creating a problem and then dumping it on a subordinate.
- Assigning the same task to several people.
- Going around your back and delegating some job to your staff.
- Not allowing staff to keep toys on their desk.
- Establishing dress codes.

And, finally, the one that really raised the roof:

- Organizing a team, then hiring a consultant to solve the problem.

Talkback on telecommuting

Managing's Feb. 12 article on managing information systems telecommuters ("home@sweet.home") left out one key consideration, according to one IS manager: What if you have to fire them?

I recently read your article on telecommuting. You explained the subject well except for one management concern. What happens if you must terminate a telecommuting employee?

When an employee works in a company office and uses company computer equipment, the legal rights to computer equipment, software and data are clearly defined. The employer can terminate the employee and secure the company's property. This process also reduces the amount of duplicated software or data that might leave the company premises.

However, the situation is much more difficult when a telecommuting employee works at home. The computer equipment and software may belong to the employer or employee. There is usually some employer data located on the home computer. How can an employer terminate the employee, recover company equipment and software in a timely manner and be sure that company data has not been duplicated or compromised?

Pre-employment agreements, however detailed, can only be enforced by the courts — a very long process. In addition, the law prohibits the employer from entering the home of an employee to recover company property without the consent of the homeowner.

Management's concern is safeguarding company-sensitive data. Yet, in the time it would take the company to legally retrieve its data from a former employee's home computer, numerous copies could have been made and distributed. This data is not limited to financial, sales and trade secrets. It could include phone numbers and contacts located in personal information management software.

I believe that this area of concern needs to be addressed and solved before companies can better embrace the telecommuting concept.

Anthony S. Weist
Bellevue, Wash.
73430.132@compuserve.com

> @ **YOU CAN TALKBACK TOO.** Send a message to the editor of the Managing section, Allan E. Alter, at allan_alter@cw.com.

One aim.
One attitude.
One rhythm.
One end.

OpenMail.

When many people can work as one... when they can communicate and collaborate in a totally synchronized way... when a single pulse seems to drive the whole enterprise... you get the power and strength of a large organization, with the flexibility and responsiveness of a small one.

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Bean Zapping

*The re-engineering movement has hit the finance department. It's
an opportunity for IS, if you watch out for those left hooks.*

By Alan Horowitz

R e-engineering has come to the finance function, and none too soon.

Showtime Networks, Inc. began re-engineering its finance department three years ago. "There were such convoluted work flows and business processes, remnants of an age gone by, we decided it's time to really step back and rethink this," says Thomas Espeland, senior vice president of information services and technology at the New York-based cable TV programmer.

AMP, Inc., a maker of electronic equipment in Harrisburg, Pa., will start its re-engineering program this summer. "We recognized we had not invested in our financial systems over the past 10 years," says John Stout, AMP's director of information systems, Americas.

Finance, including accounting, has lagged behind other functions in corporate America's modernization drive of the past 15 years. Now there's a move afoot to make up for lost time. According to New York management consultant Robert Gunn, a former partner at A. T. Kearney & Co., only 12 to 15 of the companies in the Fortune 500 had re-engineered their finance functions by 1990; today, the number is up to about 120.

What's being re-engineered

Re-engineering is affecting many areas of the finance function. Accounts payable, accounts receivable, general ledger and financial reporting are among the areas targeted for re-engineering at AMP.

Sears, Roebuck and Co. in Hoffman Estates, Ill., re-engineered its budget-creation process. Managers of the financial department and other managers created budgeting standards for travel, supplies and other expenses. The budgeting process, which used to take weeks, was cut to a few hours in many cases, says Steve Beitler, national manager for financial processes and systems at Sears.

The desire to cut costs and save money aren't the only factors driving the trend. Globalization and the need for all parts of an organization to work together are bringing re-engineering to some companies. The goal is consistency of processes, says Jeff Hoover, a partner at Coopers & Lybrand in New York. This especially pertains to finance, a function integral to any organization.

> Forty-nine percent of IS managers say accounting/finance is one of the Top 3 areas where business processes will change due to re-engineering efforts — more than any other business function.
>
> Source: 1995 survey of 792 IS managers by International Data Corp., Framingham, Mass.

"Many of the quality programs that started off in manufacturing and operations have migrated to staff functions, and that's been driving change," says David N. Dungan, national partner in charge of world-class finance at KPMG Peat Marwick in Chicago. "Advances in technology have created expectations in senior management about applying these technologies to the organization, including finance, which is typically heavily involved in information management."

Unique approach

For the IS manager, re-engineering the finance function is similar in many respects to re-engineering any other part of an organization, but finance does have its characteristic aspects.

Espeland says finance people are less forgiving of errors, such as those in software programming, than others because a company's books must be highly accurate. Beitler notes there are complications particular to finance because it has "many more internal customers" than other functions in an organization. Changes in the finance function ripple through the entire company.

Finance lacks tangible output and is often geographically dispersed; often, it is difficult to determine where a financial process begins or ends.

That makes finance one of the more difficult corporate functions to analyze, Gunn says.

It's also tough for nonfinance types to get up to speed on the lingo. It's easy to understand human resource managers when they talk about employees and compensation, "whereas finance is a more specific technical language," says Mary Munn, program manager for corporate finance at SAS Institute, Inc. in Cary, N.C. IS staffers must learn the difference between debit and credit and between balance sheet and income statement to be effective at re-engineering finance.

Further complicating the effort is IS's usual place in the corporate hierarchy — namely, just below finance. The IS manager often reports to the chief financial officer, which can create a potentially difficult conflict if he has to help re-engineer the boss' department.

Espeland and Stout say their organizations have seen little conflict there because the impetus for the re-engineering processes originated in the finance departments and therefore had their full support. But beware — there can be problems. "The IS manager can't and shouldn't re-engineer the boss' department, but he can be a partner with other players in the finance organization to drive change," Dungan observes.

The hurdles in re-engineering finance are high, but the personal and professional rewards for IS people are potentially great. "You become more a part of the fabric of the management," Espeland says. "It's a great opportunity." ∎

Horowitz is a freelance writer in Salt Lake City.

While Showtime viewers were watching the Tyson/Holmes match (left), Showtime's Thomas Espeland was helping to re-engineer Showtime's finance department

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Buyer's Guide: Systems Management

Collide-A-Scope!

The world of distributed systems management in corporations is ablaze with every kind of option you can imagine. Systems administrators can choose comprehensive frameworks (or suites) or one of many individually packaged tools (see best of breed tools, page 78). The impact of intranets also is forcing some high-level shifts in core systems management functions. Read on, and determine how to get a handle on this uncontrollable, evolutionary topic.

The challenge of distributed systems management is constantly

evolving: Every time administrators seem to get control, a new twist brings a new dimension. The biggest change on the horizon is the collision of client/server computing and the Internet. The buzzword "intranet" epitomizes this change. Analysts at Hurwitz Group, Inc. in Newton, Mass., say they expect that the emergence of consistent World Wide Web server technology won't kill off client/server computing — as some observers believe — but will accelerate adoption of sophisticated client/server and distributed technology. In order to survive, systems administrators will have to acquire and utilize tools to keep systems running and users on-line.

On one level, the emergence of intranets is a positive force and will shift the technology focus from client PCs to central servers. One of the problems with early client/server systems has been the "fat client syndrome," where most application functionality is meshed with the graphical client interface.

By Chet Geschickter This two-tier approach can lead to complex client software configurations. Web applications may alleviate the problem of such complex configurations by shifting the application focus from the client to the server. But as the Web server becomes the gateway for networked corporate computing resources, companies that haven't invested in server management face increasing risk of their systems going down.

Companies that spend tremendous effort and money on client software distribution and configuration management need to reevaluate their applications architecture strategy. Intranets are forcing some high-level shifts in the relative importance of core systems management disciplines.

Collide-A-Scope!

Because of increased interest in intranets, managers are growing more concerned about the following issues:

Performance –
As more people access the corporate infrastructure, performance degradation becomes a serious issue.

Security –
Internet/intranet segregation is an artificial work-around for poor security. In fact, the internal/external model isn't the way the world works. Security privileges have many shades of gray, including outside suppliers, contractors, partners and other people who conduct commerce.

Help desk –
Being able to identify and fix problems quickly is becoming more important as more services are offered via computer.

Network management –
Now more than ever, the network is the computer. Many companies are finding that network and systems management are inextricably linked.

Meanwhile, the following changes in the computing landscape are causing traditional management disciplines to take a nosedive in terms of their importance to users:
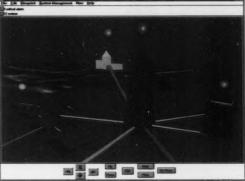
Software distribution to clients –
The ability to dynamically distribute client application software on demand may make software distribution technology a marginal investment.

Client configuration management –
The trend toward a thin browser interface on the client side is making client configuration details less important to track and control. Given the complexity of manag-

ing distributed systems, looking into integrated tool sets isn't a bad place to start. A handful of vendors promise some level of integrated systems management. As you look for an integrated systems management package, include the following core systems management categories (see glossary, page 77) on your list:

- **Problem management**
- **Performance management**
- **Software distribution**
- **Configuration and administration**
- **Data and storage management**
- **Operations**
- **Security management**

CA-Unicenter's 3-D visualization system depicts the status of the networks, computers, databases and software applications inside it

Top suites:
Quick analyses

Hurwitz Group's Chet Geschickter analyzes several leading integrated systems management products, focusing on the technology used and the product's market position:

Tivoli Management Environment (TME) and SystemView
Tivoli Systems, Inc., an IBM company
Austin, Texas
(512) 794-9070
http://www.tivoli.com
Tivoli/IBM can become a powerful combination, but the product integration resulting from IBM's purchase of Tivoli will take a while to play out. Because the integration will take some time, TME and SystemView will be treated as two separate products in this analysis.

The combination is good news for managers who are dealing with distributed systems. Tivoli needs the engineering and distribution muscle of IBM. IBM needs the integration capabilities of Tivoli to make its object-oriented SystemView story real. We expect Tivoli technology to take the upper hand by serving as the integration vehicle for disparate SystemView products. The merger has the potential to fundamentally alter over time the integrated systems management landscape.

Tivoli/IBM's plan is to combine network systems and application management for all major management disciplines, on all platforms. But this may take two or three years to come to fruition.

CA-Unicenter
Computer Associates International, Inc.
Islandia, N.Y.
(800) 225-5224
http://www.cai.com
CA provides mainframe-level coverage of core management disciplines for Unix and NT servers. The scope of CA-Unicenter is impressive; it cov-

ers security, fault management, help desk, storage, accounting, performance and other areas.

CA is reinvesting in CA-Unicenter through new development and the acquisition of Legent Corp. management technologies. CA has kept CA-Unicenter competitive with some of the newer entries in the marketplace, such as the Tivoli/IBM collaboration.

CA is playing catch-up on the integration front. It's opening up its product architecture and starting to recruit third parties to write to its management application programming interfaces. The firm has announced CA-Unicenter/ICE, a Web server management strategy that integrates CA-Unicenter's security, backup, storage and event monitoring capabilities with leading Web servers.

IT/Operations; IT/Admin
Hewlett-Packard Co.
Palo Alto, Calif.
(800) 752-0900
http://www.hp.com
HP is following the call of the market

by integrating its previously independent network management and systems management offerings. IT/Operations handles runtime monitoring and management of distributed systems. IT/Admin is used for configuring and administering distributed systems. IT/Operations is further along in network/systems management integration; it presents a topological network console view, a logical systems management console view and the ability to share alarms and alerts. HP also has a strong performance monitoring component called MeasureWare. HP plans to roll out support for Microsoft Corp.'s Windows NT environment this year.

POEMS
Platinum Technology, Inc.
Oakbrook Terrace, Ill.
(800) 625-7528
http://www.platinum.com
Platinum may have snuck up on a few people in the past year or two, when it aggressively acquired distributed systems management technologies. Acquisitions have given

Top suites:
Strengths and weaknesses

IBM/Tivoli's TME and SystemView

TME strengths: Object-oriented approach is powerful; distributed domain strategy can help midlevel managers achieve scalability because they can filter events from multiple agents.

Object technology is a key for Tivoli's TMS

SystemView strengths: Has network management and core systems tools, such as workload balancing; features enterprise storage management.

TME weaknesses: Features high price tag and relatively long implementation cycle; lacks a mainframe management strategy.

SystemView weaknesses: Features limited integration among management applications; lacks a consistent distributed management infrastructure.

Computer Associates' CA-Unicenter

Strengths: Wide scope of management discipline coverage; depth of some key management functions, such as security weakness; architecture is more oriented to management of centralized server farms than to broadly distributed systems.

Weaknesses: Modularity is limited; customers must buy all CA-Unicenter core functions.

HP's IT/Operations, IT/Admin

Strengths: Well-engineered performance monitoring products; features good coverage of backup management, operations and configuration.

Weaknesses: Inconsistent product architectures across functional areas; management of NT is a work in progress, and there is no Web server strategy.

Platinum Technology's POEMS

Strengths: Product is a collection of strong point products; data-centered integration could provide a high degree of flexibility.

Weaknesses: Integration depends on the success of POEMS, a work in progress; platform coverage and levels of integration vary from product to product.

Boole & Babbage's Ensign

Strengths: Low cost; easy to install and use; includes predefined management templates.

Weaknesses: Product is less scalable to enterprisewide management than its competitors; functional scope is limited.

Platinum leading point products (or packages designed to do one thing well) in help desk, event management, performance monitoring, software distribution and job control (see related story, page 78). Platinum plans to use a common data repository called POEMS to integrate new and old tools. The POEMS repository allows for the exchange of data among systems management tools. The first components of the POEMS repository are due by midyear. Platinum's strategy is to let systems managers choose the "best of breed" technology. Support for NT varies from product to product.

Ensign
Boole & Babbage, Inc.
San Jose, Calif.
(800) 544-2152
http://www.boole.com
Boole & Babbage has entered the distributed systems management fray with a product focused on event management and administration. Ensign also includes some backup and restore functionality. It's best-suited for workgroup-oriented man-

agement scenarios because of its ease of installation and setup. Boole & Babbage is broadening coverage through partnerships with third-party point products. Ensign supports NT, but Boole & Babbage hasn't announced a Web server strategy.

Conclusion
Underlying many of the partnerships and multivendor integration attempts is the fact that the industry hasn't delivered meaningful standards for integrated systems management. Although Tivoli has promoted its approach for years, no standards body has attacked the hydra of distributed systems management. Vendors and systems administrators must cobble together their own devices. Depending on your situation, one of the products above may be valuable as the basis for your systems management needs. It's likely you will need to fill in some key functionality with third-party point products. ■

Geschickter is an analyst at Hurwitz Group, Inc. in Newton, Mass.

Glossary

Problem management —
The ability to identify and correct malfunctioning systems, applications or networks to deliver high availability. In a distributed environment, the attempt to isolate problems can be complicated by the large number of dependencies among components.

Performance management —
The ability to tune, monitor and manage response time by analyzing and reacting to systems metrics.

Software distribution —
The process of remotely installing and configuring software on a variety of clients and servers.

Configuration and administration —
The ability to track and control computing resources and end users.

Data and storage management —
The ability to protect critical data and optimize storage resources.

Operations —
The ability to manage and coordinate the use of computing resources. This includes job scheduling, load balancing and print spool management.

Security management —
The process of protecting data and applications from unauthorized use.
— *Chet Geschickter*

Intranet —
A corporate network built using Internet technologies. Its primary purpose is to improve productivity.

Fat client strategy —
A client/server architecture in which the greatest portion of application logic is processed by the PC rather than the centralized server.

Hierarchical storage management —
The assignment of data to the most appropriate storage media, typically based on the frequency at which it's accessed.
— *James Connolly*

SErvice GAmes

Resources

BOOKS AND BULLETINS

Distributed Systems
By Sape Mullender
Addison-Wesley Publishing Co.
Reading, Mass. (1993)
601 pages

Distributed Systems Management Tools Bulletin
Meta Group, Inc.
Stamford, Conn.
(203) 973-6700
http://www.metagroup.com

CONFERENCES/SEMINARS

FCRC '96: Fourth Annual Workshop on I/O in Parallel and Distributed Systems
May 26
Philadelphia
Contact: Association for Computing Machinery
1515 Broadway
New York, N.Y. 10036-5701
(212) 626-0500
http://www.acm.org

Managing Chaos in a Distributed Computing Environment
May 1-3
Atlanta Marriott Marquis
Atlanta
Contact: Cory Collins
Gartner Group, Inc.
Rochester, N.Y. 14673-3830
(800) 645-6395

PDCS '96: Ninth Annual Conference on Parallel and Distributed Computing Systems
Sept. 25-27
Dijon, France
Contact: International Society for Computers and Their Applications
8820 Six Forks Rd.
Raleigh, N.C. 27615-2969
(919) 847-3747
http://isca@interpath.com

PDIS '96: Fourth International Conference on Parallel and Distributed Information Systems
Dec. 18-20,
Eden Roc Resort & Spa
Miami Beach, Fla.
Contact: Dr. Wei Sun
General Chair, PDIS '96
School of Computer Science
Florida International University
Miami, Fla. 33199
(305) 348-3751
http://www.cs.fiu.edu

Point solutions

Best-of-breed products can step in where integrated suites may be lacking

By Lynda Radosevich

Buying an integrated suite

of software from one vendor generally means you don't get the best-of-breed components for each functional area. Distributed systems management suites are no exception. So even if you choose an integrated collection of management tools, chances are you'll also need some point products, or packages designed to do one thing well.

One critical issue not fully addressed by the management suites is end-user administration. "When a new employee is hired, you have to add them to 14 NetWare servers, issue 18 different passwords and define their rights to bunches of different systems," says Chris Byrnes, a systems management analyst at Meta Group, Inc. While management suites such as CA-Unicenter can reduce some of the bother, they can't manage the enterprise unless the whole enterprise is devoted to that platform, Byrnes says.

Another threadbare area is job scheduling. The suites "have pretty basic job scheduling, but not necessarily everything you would want," says Paul Mason, director of enterprise systems management research at International Data Corp. (IDC).

To fill these holes, experts at Hurwitz Group, IDC and Meta Group identify some technically strong products in key categories. It's important to note that many of these vendors have hearty products in other systems management categories as well.

END-USER SECURITY ADMINISTRATION

These products offer a secure focal point for end-user access to multiple systems. They are available for the first time this year, Byrnes says.

New Dimension Software, Inc.
Control SA
Irvine, Calif.
(800) 613-7033
http://www.ddddf.com

This product manages user enrollment and administration for any system in a multiplatform setting. Administrators can define users only once. The product determines which applications users can access and the level of access. Control SA runs from a central Unix-based workstation.

Schumann Security Software, Inc.
Security Administration Manager (SAM)
Calverton, Md.
(301) 931-0187
http://www. schumannsoftware.com

This MVS-based package can be used to manage all platforms. SAM offers a central point of administration and control for end-user access to an enterprise's various computer systems.

Technologic Software Concepts, Inc.
RAS Enterprise
Irvine, Calif.
(800) 626-4567

RAS Enterprise automates the process of administering security in a multiplatform environment. It embeds workflow processes in the product, so it's good for companies that are dispersed geographically but tied together by a single network. It's fairly expensive and complex.

JOB SCHEDULING

Simple backup capabilities in management suites often don't have provisions for handling complications, Mason says. When a user's scheduling needs are more complex than running a simple backup once a week, the following products may help:

Platinum Technology, Inc.
AutoSys
Oakbrook Terrace, Ill.
(800) 625-7528
http://www.platinum.com

This product is good for scheduling complex jobs that rely on the interdependencies of jobs on different platforms. It goes beyond

automatic scheduling to include load balancing.

Unison Software, Inc.
Maestro
Santa Clara, Calif.
(408) 988-2800.
http://www.unison.com

Similar to AutoSys, Maestro can deal with complex interdependencies on different systems. It includes rules that specify actions if jobs don't happen. It also includes load balancing.

Software Partner's StorageCenter features a motif graphical user interface

PERFORMANCE, AVAILABILITY MANAGEMENT

These products can collect, manage and display data on large-scale, multiplatform systems. Features are much richer than in systems management platforms such as CA-Unicenter, Mason says.

Compuware Corp.
Ecotools
Farmington Hills, Mich.
(810) 737-7700
http://www.compuware.com

This product, with larger-scale Unix systems, collects management information and displays it well. Ecotools integrates with HP's OpenView and Sun Microsystems, Inc.'s SunNet Manager.

BMC Software, Inc.
Patrol
Houston, Texas
(800) 841-2031
http://www.bmc.com

Application management system controls multiple systems, so administrators can view and control corporate data as a whole. Works with products including CA-Unicenter, IBM's NetView, SunNet

Manager and Digital Equipment Corp.'s Polycenter.

Landmark Systems Corp.
PerformanceWorks
Vienna, Va.
(800) 333-8666
http://www.landmark.com

Features modeling and projected performance data, so analysts can predict bottlenecks. It runs on major Unix platforms and integrates with Tivoli tools.

HIGH-LEVEL SECURITY

The management suites don't have the highest level of security for multisystem log-ons, the experts say. Companies that want added security can turn to the following products:

Axent Technologies, Inc.
OmniGuard
Rockville, Md.
(800) 298-2620
http://www.axent.com

The product family integrates security management across various platforms and gives administrators a central point of control.

Securix, Inc.
Roks
Burlingame, Calif.
(415) 343-8999

Used by very large U.S. banks and trading floors to let users log on once to access multiple systems. It doesn't rely on passwords; instead, it uses tokens passed in real time.

STORAGE MANAGEMENT

Management suites have varying degrees of storage management capabilities. Analysts say the following products can fill gaps in storage and media management:

Alphatronix, Inc.
Inspire
Research Triangle Park, N.C.
(800) 849-2611
http://www.alphatronix.com

An integrated suite of storage management software. Modules include central management, enterprise backup and hierarchical storage management. Unix-based; can back up Novell, Inc.'s NetWare.

Software Partners/32, Inc.
StorageCenter
Topsfield, Mass.
(800) 828-5830
http://www.softwarepartners.com

A suite of administration, archiving and media backup and restore tools. Features 128-bit encryption scheme. Runs on Digital VMS, Unix and Microsoft Corp.'s Windows NT; doesn't run on NetWare.

Radosevich is a writer in Belmont, Mass.

WEEK 14 OF 19

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2. Enter the page number containing the correct answers via COMPUTERWORLD's Web site on the Internet:

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3. On the Web site Entry Form, identify the page number in this week's issue of COMPUTERWORLD where the correct answer to each TechnoTrivia question appears.

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Trivia questions and answers provided and/or verified by Christopher Morgan and The Computer Museum.

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Question #	Correct Answer on Page #	
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Please pass along this issue of COMPUTERWORLD to an associate after you have finished playing the game.

This Week's TechnoTrivia™ Questions
Find the answers in this issue of Computerworld

1. What does SEGA, the name of a popular line of computer games, stand for?

2. What was the first tune generated by a computer?

3. In what year did the computer replace the abacus for the Chinese census?

4. The DataGlove, a virtual reality device that lets users interact with the computer through hand motions, was originally invented for what purpose?

5. What video game was the first to inspire a TV show?

i

Meeting the Challenge of Client-Server Computing

Maximizing Return-on-Investment of Network Computing

The migration to client-server computing is affecting organizations both large and small almost everywhere on the planet. Computer users today have extensive access to global network-based resources, including communication gateways to other companies, individuals, and markets worldwide. Signs of this connectedness abound:

- Last year the number of LAN users worldwide hit nearly 100 million, double the number in 1993. By 1999 the number will double again

- In the same year the number of people in the world with electronic mail boxes topped 40 million. By 1999 the number will be over 125 million

- Groupware users numbered over 30 million worldwide by the end of 1995; by 1999 they will number over 250 million

Figure 1 — The Hidden Costs of Client-Server

Small Centralized Sites — 5%, 9%, 20%, 12%, 54%

Large Distributed Sites — 5%, 17%, 17%, 25%, 38%

Hardware, Operations staff, Central site allocation, Software, Application development staff, Support

Source: International Data Corporation, 1996

So we are heading for a wired workplace, a wired marketplace, even a wired society. However, there is a price to be paid for all this connectivity. The nearly universal implementation of client-server systems requires living with new levels of complexity and new hardware and software that people must be trained to use. Moreover, highly skilled personnel must be hired to install, manage, maintain, and administer these far-flung networks. The result is that staffing costs have become the largest contributor to total networked computing costs, regardless of the size of the installation (see Figure 1).

Until now, companies have justified the costs and complexities of client-server computing by competitive advantage–it is a very flexible and adaptable computing style. But when client-server is the norm, where will the competitive advantage lie?

IDC believes that companies that learn to manage their networked resources through technology and training will win out over their peers in the long run. Companies that understand the true costs and true benefits of client-server computing

will generate quicker return for their investments. Companies that relentlessly optimize, integrate, and upgrade existing systems will stretch IT resources further and be able to reinvest sooner than competitors taking a wait-and-see approach.

Areas of Opportunity

IDC and Novell have teamed to produce this White Paper in order to help IT managers develop a strategy for maximizing return on investment in networked computing resources. It is the executive overview of three studies researched and written by IDC and sponsored by Novell. In the research it conducted,

Driving Down Networking Costs

GroupWise:	NetWare 4:	ManageWise:
Typical annual return-per-user of 334%	On average 15% less expensive than NT Server from Microsoft	$95,784 savings in business efficiency per 100 users
Nearly $400,000 a year saved in phone costs at Farmland Foods	50% increase in users supported by a single server	50% reduction in network downtime
Courier costs cut $16,000 a year at Sheppard, Mullin, Richter & Hampton		19.7 day payback

Figure 2 — The Investment Leverage from Groupware

Hard Benefits:

- Individual Productivity
- Price Savings

+

- Group Productivity
- Lower Comm Costs

+

- Enterprise Transactions
- Saved Conversion Costs
- Lower Training Costs

■ Per user cost/month

■ Per user return/month

Source: International Data Corporation, 1996

Figure 2 illustrates how electronic communication and collaboration generate cascading benefits. Standalone desktop software can impact individual productivity, but when combined with e-mail, that software can improve the productivity of a whole workgroup, not just the individal user. If the e-mail is specifically designed to work with the desktop software and with the network software, as say Novell's GroupWise is with NetWare 4.1, then those workgroup benefits are compounded.

This efficiency pays real dividends. When Sheppard, Mullin, Richter & Hampton, a Los Angeles law firm, made the move to GroupWise it found the support ratio for lawyers dropped from one assistant for every two lawyers to one for every three. GroupWise scheduling cut countless hours in tasks as routine as setting up meetings; GroupWise e-mail cut courier costs by $16,000 a year.

IDC found three areas of networked computing that are focal points for ROI leverage:

1. The choice and use of communication applications such as e-mail and groupware

2. The choice and use of next-generation network operating systems

3. The use of advanced network and system management tools

In addition, IDC found that when products in support of all three of these areas work together in an integrated fashion—such as Novell's GroupWise, NetWare 4.1, and ManageWise products—benefits are compounded. Support and training costs are lower, conversions and upgrades occur faster, applications come on stream sooner, and downtime is reduced.

Applications for the Next Wave
The migration to client-server computing is a quest to provide users with access to information and computer resources beyond their desks. One of the key tools for this is groupware software, epitomized by Novell's GroupWise, software which integrates e-mail with scheduling, calendaring, and other workgroup oriented functions. The market for groupware is exploding as organizations find they can use it—specifically the e-mail function—as a platform for providing workgroup and even enterprise-wide access to information and resources.

In the research IDC conducted, almost half of the business benefits organizations received from migrating to groupware came from better internal and external communications. For instance, Farmland Foods, a $2 billion dollar meat processing company, found that since installing GroupWise, documents once faxed in 15 minutes now take less than five to e-mail. Further, the use of GroupWise saved almost $400,000 in voice phone calls a year.

For most companies, an investment in groupware is considered an incremental cost. The hardware is already in place, as is the network. Moreover, the support costs—which account for more than 50% of the cost of operating a networked PC—are shared across dozens of applications.

But even with all the hardware, network, and support costs amortized across the groupware software, it's a bargain. IDC's research with Novell's GroupWise customers found that a typical installation required only about $250 in fully-loaded first-year costs—less than 5% of the annual cost of operating and supporting an end-user personal computer.

For that $250 investment, those same GroupWise customers found that their first-year return was over $800 on lowered communication and clerical costs alone. Meanwhile, they accrued an array of other concrete benefits, such as fewer meetings (and thus less travel and meeting administration), easier document handling, and so on. For every single GroupWise customer interviewed by IDC, return-on-investment exceeded expectations.

Modernizing the Network
If the LAN is the heart of client-server computing, then the network operating system is its soul. As LANs have evolved from peripheral information systems to the primary components of mission-critical systems, they have become more robust and more scalable. Along the way they have also provided IS personnel with the tools to manage network resources as never before.

In fact, powerful new management capabilities are why many people are migrating to NetWare 4.1. With more than 375,000
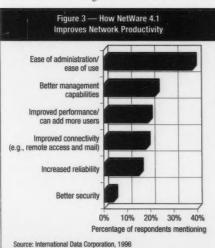
licenses installed worldwide as of 1995, it is the most popular network operating system. Three key reasons for its popularity are:
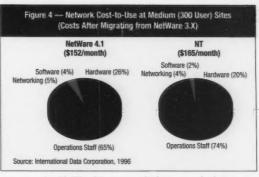
- Greater functionality
- Improved management
- Directory services

Figure 3 illustrates how survey respondents believe migrating to NetWare 4.1 has enhanced network productivity—with ease of administration at the top of the list, mentioned by nearly 40% of respondents. NetWare 4.1's greater functionality has promoted companies' reliance on LANs and delivered on the ultimate promise of client-server—increased productivity.

According to recent surveys conducted by IDC, LAN managers report remarkable improvements in managing their networks under NetWare 4.1. Although they expected the number of nodes on their networks to grow by 260% in the 12 months following installation, they anticipated the number of file servers on the network would grow by only 163%. In other words, under NetWare 4.1, they expect to increase the ratio of users per server from 41 to 60—an improvement of 50%.

In addition to increasing the number of users per server, NetWare 4.1 provides a single point of administration with Novell Directory Services (NDS) that results in a lower cost of network administration. Figure 4 shows how, in medium-sized

Figure 4 — Network Cost-to-Use at Medium (300 User) Sites
(Costs After Migrating from NetWare 3.X)

NetWare 4.1 ($152/month)
Software (4%)   Hardware (26%)
Networking (5%)
Operations Staff (65%)

NT ($165/month)
Software (2%)
Networking (4%)   Hardware (20%)
Operations Staff (74%)

Source: International Data Corporation, 1996

sites, NetWare 4.1 generates 14% lower network administration costs than Microsoft NT, primarily by increasing the user to support staff ratio.

Novell and other networking companies have set their sights on developing new technologies that will make tomorrow's networks more efficient and flexible. Novell has developed a Smart Global Network strategy, which entails making the network available to anyone—anytime, anywhere. An essential component of the Smart Global Network is Novell Directory Services (NDS), which enables companies to keep track of and connect all of a network's users, workgroups, hardware and software on one common access and administrative framework. NDS provides directory services technology that can handle the management of countless resources on heterogeneous systems spread around the globe. Also fundamental to Novell's vision of the future is an open set of application programming interfaces (APIs) that will make it easy to incorporate NDS and other NetWare 4 networking services into distributed applications.

Providing End-to-End Network Management

Staffing costs and end-user productivity are the issues that keep IS managers awake at night. And that has never been more true than it is today. As networks expand and intertwine, the critical success factors for network managers will include:

- Increasing network uptime, both in operation and when installing new users or applications
- Increasing efficiency by supporting rapid network growth without commensurate growth in staff
- Increasing responsiveness, fixing problems in a way that minimizes idle time for users or within business processes

To meet these needs, Novell offers ManageWise. It combines both network management and PC administration into a single, integrated package. Previously, most PC administration and LAN management products worked independently of one another, each requiring dedicated staff and resources.

Figure 3 — How NetWare 4.1
Improves Network Productivity

Ease of administration/ ease of use

Better management capabilities

Improved performance/ can add more users

Improved connectivity (e.g., remote access and mail)

Increased reliability

Better security

0%   10%   20%   30%   40%
Percentage of respondents mentioning

Source: International Data Corporation, 1996

ManageWise is the integrated solution that offers a single view of the network. It provides analysis tools for understanding bottlenecks; permits the configuration, inventory, and diagnostics of PCs from a single local or remote site; and provides tools for monitoring and managing remote and local servers. IDC's research demonstrates that even small and medium-sized companies can achieve significant cost savings by implementing ManageWise (see Figure 5). Network managers found that the most significant gains in efficiency were realized in server operation and help desk functions. Using ManageWise also increased LAN manager responsiveness. Before implementation, only 30% of network or end-user problems could be solved from a central site; afterwards, that number rose to 60%. This is especially important for companies with highly decentralized operations.
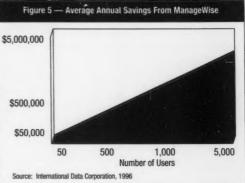
Since the software-licensing, maintenance, and training costs of a product like ManageWise are low compared to the number of users potentially affected, the return on investment can be surprisingly high. Across the survey base polled by IDC, ManageWise paid for itself on average within 19.7 days.

For every 100 users, implementing integrated management with ManageWise saved $95,784 annually. These savings are attributable to the following:

- More efficient systems management, including an increase of 33% in the number of servers and 25% in the number of PCs a staff person can support, and a decrease in travel of 53%, leading to annual cost savings of $14,500

- Significant reductions in the time required to perform key management tasks—such as five hours in moves and changes, nine hours in server maintenance and configuration, seven hours in help desk and support, four hours in problem tracking, three hours in printer maintenance, etc.—saving $30,844 annually

- Dramatic reductions in network downtime (over 50%) due to network outages, delays addressing problems at the desktop, or time spent installing and configuring applications, generating annual savings of $50,440

Cost-Savings and Client-Server:
They Aren't Mutually Exclusive

Believe it or not, return on investment in networking can be quantified. While it may sometimes seem that networks are growing out of control, vendors like Novell are in fact working diligently to develop products for simplified, easily managed

Figure 5 — Average Annual Savings From ManageWise

Source: International Data Corporation, 1996

local, wide-area, and global networks. Because of the strategic and financial advantages of networking wherever systems reside and users roam, organizations will be forced to expand the reach and complexity of their networks simply to remain competitive.

Astute companies will concentrate on migrating to client-server computing in ways that maximize both the resources available to run networks and the effectiveness of those who ultimately generate revenues and profits—namely, end users.

Call to Action

This is an executive overview of a three-part series of White Papers entitled:

- Novell GroupWise: Leveraging Desktop and Network Investments
- Novell NetWare 4.1: Reducing Cost of Ownership
- Novell ManageWise: Maximizing Returns on Networking Investments
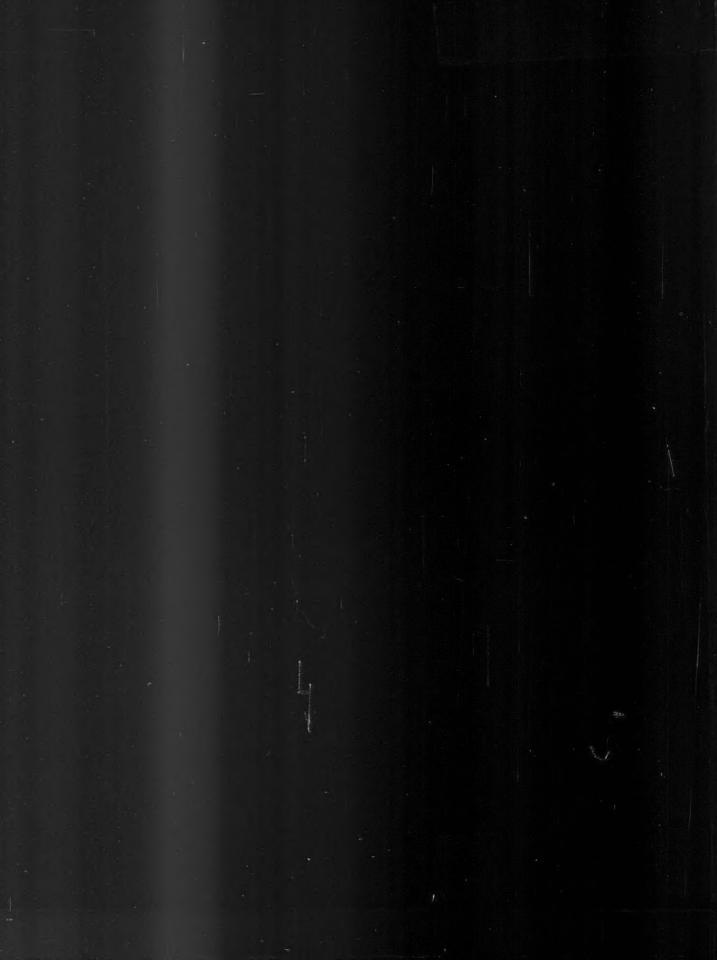
For a free copy of the Novell Business Advisor containing tools that help you assess return on investment with NetWare, MangeWise, and GroupWise, as well as electronic versions of the IDC White Papers, call 1-800-665-4586 or visit either the Novell home page at http://www.roi.novell.com or the IDC home page at http://www.idcresearch.com

THE CITY that never sleeps, THE BIG APPLE, the city so nice they named it twice, has earned yet another moniker: SILICON ALLEY. Believe it or not, New York, New York — from the lofts lining the cobblestone streets of TriBeCa and SoHo to the Midtown skyscrapers — has emerged as the cybercapital of the world.

SILICON ALLEY

WEB START-UPS THRONG NEW YORK
BY LESLIE GOFF

F ilmmakers, artists, writers, musicians, photographers. Historically, they've brought New York much of its cultural cachet. Now they're shaping the World Wide Web. The Web has brought a wealth of new investment and jobs to the city in the past two years; a host of Web site development companies as diverse and unconventional sounding as Pseudo Programs, Inc., SonicNet, Earthweb, Hi-D Interactive and Razorfish have changed the city's economic landscape.

But as the Web matures, these tiny firms face the same growth and business decisions their forebears in Northern California and Massachusetts did nearly a generation ago. They're also starting to realize that despite the lofts, cafes and all-night parties that form their milieu, they are indeed in the technology business.

What is hip?

Downtown Manhattan's vocabulary is changing. In bars, restaurants, cafes, corporate corridors and home offices, New York's beautiful people are talking "http-colon-slash-slash," "IRC" (Internet Relay Chat, but if you need to ask ...) and "webmasters." At "cyberparties" citywide, where high times meet high-tech in a confluence of sex, drugs, rock 'n' roll and Hypertext Markup Language, Wall Street programmers share drinks with leather-laden East Village artists, swapping opinions on Real Audio, Java applets and new paradigms of social interaction.

"The Web is not overly technical, and that has enabled a whole slew of people to participate in this industry who couldn't write a C program if their lives depended on it," says Carl Goodman, curator of digital media at the American Muse-

"The Web is more about design and content than hard-core programming." — Carl Goodman

um of the Moving Image in the borough of Queens, just across the East River from Manhattan.

Silicon Alley's start-ups have gone after the Web as a community entertainment mecca. Pseudo Programs gained early success offering chat in a virtual environment on Prodigy, and it has built the equivalent of an AM talk radio station on the Web. SonicNet has created a

Silicon Alley, *page 82*

"*The way I'd like things to be is, I'm sitting in Baby Jake's [a Greenwich Village bar/restaurant], and I overhear someone saying, 'Oh, did you hear Rev. Billy on Pseudo today?' I want to hear people talking about the shows the way they'd talk about* Seinfeld.*"* – Josh Harris, founder and president of Pseudo Programs

Pseudo Programs'
JOSH HARRIS at the
Loft scene of notorious
Warhol-esque parties

meeting place for fans of alternative and underground music, complete with concerts and other live events. Hi-D, which has its own site and develops tool sets and content for other Web developers, aims to create emotional on-line experiences.

Companies such as these have bridged two communities whose members have long been leery of one another. Since the first time an engineer stuck a punch card in a data processing machine, the worlds of computer jockeys and bohemian aesthetes have been miles apart. Artists have long prided themselves on being technophobes: The image of the artist sketching quietly in the countryside, as far as possible from infernal machines, is archetypal.

Content is king

That archetype is giving way to a new image in New York. Since content, as much as technology, is driving the new-media train, the interests of these two communities have intersected. So far, the content providers have gotten as much attention as the medium itself; the real cyberstars in New York are the Andy Warhols, not the Steve Jobses.

"The Web is more about design and content than hard-core programming, and New York is where you have all these writers, illustrators, designers, filmmakers and artists who have been using computers to create for some time now," Goodman says. "And they have found it a very simple transition to create work that is also viewed and used on a computer screen."

Entertainment programmers, not computer programmers, will ultimately make the Web a commercial success, contends Josh Harris, founder and president of Pseudo Programs. The Polaris of New York's cyberscene, Harris has positioned Pseudo Programs — through a combination of chutzpah, mystique, rhetoric and an early relationship with Prodigy — at the center of Silicon Alley speculation and gossip. His vision of the Web as an entertainment vehicle has at times seemed unclear even to his employees but is materializing into the talk radio format he has built at Pseudo Program's Web site.

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As Silicon Alley's cachet grew and **Silicon Alley,** *page 85*

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SILICON ALLEY

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Pseudo Programs JOSH HARRIS at the Loft scene of notorious Warhol-esque parties

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COMPUTERWORLD

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PSEUDO PROGRAMS , INC.
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CONTINUED FROM PAGE 82

For the Java development community

Help two lovelorn New Yorkers resolve their relationship dilemmas

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its stars emerged as gurus, the popular media in New York caught the fever. The mania peaked last fall when myriad New York newspapers and magazines ran articles about the new kids in town. Cyberparties, like Pseudo's infamous Loft soirees and the New York New Media Association's CyberSuds networking parties, swelled. For a while, it seemed as if anyone who ever laid hands on a keyboard was starting a new-media company. "The New York New Media Association has 2,000 members and 2,200 presidents of Web development firms," one observer says.

Can you trust a webmaster over 30?

Already, though, the mood is shifting. Last fall's abstract conversations are giving way to talk of work processes and synergistic relationships, initial public offerings and revenue streams.

"I think people in the business now have a little more seasoning," says Nicholas Butterworth, creative director of SonicNet. "A lot of us are now in our second or third year in the business, so we've all sort of learned a lot — some good and some bad. Now we're all more focused on the day-to-day issues of making a business work.

"It's fair to say," he adds, "that Sili-

con Alley is growing up."

Indeed, several Silicon Alley companies are bringing in experienced business managers from the publishing, advertising, direct marketing and computer arenas to help steer them through an anticipated shakeout.

"These days, you probably see more suits than tattoos" at cyberparties, says Mark Stahlman, founder and director of the New York New Media Association. He also coined the nickname "Silicon Alley." "If the Web is not a runaway success, then there will be a lot of disappointment and a lot of stranded investment."

Shepard Morrow is an example of Silicon Alley's maturation. Now president of Overall Knowledge Co. (OKC), which began life as a Web site design company, Morrow originally came to OKC as a management consultant when the company's wunderkind founder/developer ran into growing pains. The founder has since left, and Morrow has taken the reins.

Morrow is shaping OKC into a serious, full-service Internet design and strategic consulting firm. It provides site design, content creation, back-end programming and site maintenance for such clients as Chemical Banking Corp., the New York New Media Association and Paris to Provence, a European antiques gallery in New York.

Morrow says that while content will continue to be king, the Internet will become less of an entertainment venue and more of a business-to-business tool: "That's something Web development companies will have to focus on, or they'll be nothing more than producers."

Silicon Alley has succeeded so far based on the innovation and hipness of its Web sites. As bandwidth increases, however, and embedded applications such as Real Audio and Java applets join the mainstream, designing and maintaining Web sites will be increasingly complex. That's forcing Silicon Alley to address the fact that this is still a technology-driven business, and success ultimately will require deep technology expertise.

"We're moving into an arena where it will be increasingly difficult for people with nontechnical backgrounds to produce high-quality Web sites," Butterworth says. "It's absolutely becoming a more techni-

cal medium, not less, and the next generation of creatives will have a harder time mastering the environment."

Sounding like a chief information officer discussing the alignment of information systems with business units, Butterworth adds, "The real art and science is figuring out how to integrate people's different experiences. How do you get someone from a technical background to work with someone from a film background? An illustrator may know nothing about quality assurance, and a programmer may not understand why a copy editor takes so long worrying over one sentence. The hard part is developing a common language, and that's what we're trying to do." ■

Goff is a freelance writer in New York.

Pacman

Computer Careers

Getting out of the back room

By Brian D. Jaffe

One of the most difficult career transitions to make in information systems is the move up from the technician's role.

For some, it's a matter of focusing on non-IS skills. Others have the additional hurdle of finding their way out of the back room, where some of the best talents in IS are kept. They may spend their days on operating systems internals, monitoring hardware and communications resources or trying out new technologies.

Some draw the backroom assignment because their work (such as servers and wiring racks) is there. Others may be there because their supervisor would rather not have them too visible. For the latter, there's a process to help find a career path out of the back room.

Communications

If you aren't sure of your writing skills, you should make plentiful use of the advanced features in word-processing software, and ask a colleague to review your memos and reports. In oral communications, try to organize your thoughts and prepare notes before going in to meetings. Take a few seconds before opening your mouth to mentally organize your ideas.

Don't talk over people's heads by being too technical with people who won't understand — and who don't want or need to understand. On the other hand, make an effort to understand basic procedures, concepts and terms of the organizations (internal or external) and users with whom you deal.

Meetings

Whether it's just you and your boss or a large crowd, you can use meetings to your advantage by showing that you're more than just a techie. If there's an agenda, get a copy of it in advance. Restrict your involvement to pertinent issues. Try to interject at least one worthwhile comment or question in each meeting.

Use your technical expertise to raise issues — compatibility, response time, data communications, software licensing, redundancy — that the others might have missed. If there are items that require action on your part, make sure you follow up with a memo or telephone call so others are confident in your role.

Organization

Even if you aren't organized, act as if you are. If you can't keep decent files, try to keep things in manageable piles. Keep track of your activity on projects, and be sure to put the date on everything you send and receive.

If you work with a lot of hardware and cables, grab a label maker and label everything in sight, including those items that are "documented" with Post-it notes.

If you are in operations, put together a concise and organized packet of those procedures and items that only you know. Distribute them, and update them when things change. If you are involved with communications or LANs, put together a schematic of the network for all to see.

Working in a more organized manner conveys impressions of control and competence.

Know your world

At least glance at everything that comes in your mail. There are enough free trade journals to keep your in-box filled. You don't have to read them cover to cover; just scan the headlines and those articles that interest you.

Glance at the corporate announcements before tossing them in the recycling bin.

Stay aware of organizational changes, and congratulate people when you hear about a promotion.

Gaining others' confidence

You may be tops in your field, but the way you handle yourself may cloud others' perceptions.

For example, if the payroll transfer to the bank can't go through because the line is down, you might be pleased that you were able to quickly pinpoint the cause of the problem.

But don't go to your boss and panic because the time needed to repair it will delay the payroll.

Instead, describe the situation and offer alternatives — such as using another line or having a messenger hand-deliver the file.

Be thorough in your work and your testing. If repeatedly you implement something and then have to be called back several times because you missed a step or made a typo, it will chip away at others' confidence in you.

Similarly, when you promise to do something at a certain time, do it or call in advance to reschedule. Small courtesies go a long way.

This is just a short list to get you started. Some ideas may be easy to adopt, but it may take serious effort to change other old habits.

Some may be noticed almost immediately, but others may take time.

There's nothing wrong with being an IS technical expert, but shedding the only-a-techie image can go far to expand your opportunities. ∎

Jaffe, client services manager at a Fortune 100 company in New York, writes frequently about systems support topics. His electronic-mail address is 103727.2235@compuserve.com.

THE MANAGER'S ROLE

An employee trying to move out of the back room can benefit tremendously from a manager who encourages the effort and coaches the employee. For the manager, seeing real results as your employee develops can be one of the most rewarding aspects of your job.

● Let the employee know you support his efforts to further his career. At the same time, be honest and frank in letting him know that it could be a difficult transition that requires commitment.

● If the employee is open to your advice, be open and direct in helping the employee identify the areas he needs to concentrate on.

● Be sure to recognize, without patronizing, any progress the employee makes in his efforts. This recognition should include changes in assignments that will build on the progress made.

● Gauge your coaching to the specific employee. You might think your comment will hit the employee over the head, but he might take it as a passing comment.

● The focus may be on setting a career path that leads out of the back room, but remind the employee not to overlook the equally important issue of where it's going to lead long-term.

Regional Scope: Atlanta

The Olympic games will bring unparalleled job and networking opportunities to Atlanta this summer

Olympic hopefuls

The workforce: Staying the course

By Jill Vitiello

This summer in Atlanta, programming will give way to partying when the XXVI Olympic Games take over the city July 19 through Aug. 4. Downtown will be converted temporarily from a thriving commercial center into the Olympic Village, cordoned off to all but pedestrian traffic and open only to athletes and ticket holders.

Olympic activities will make the headquarters of companies such as The Coca-Cola Co. and Georgia-Pacific Corp. difficult to reach and, in some cases, downright inaccessible to employees, clients and suppliers. The Olympic impact will reach beyond downtown as well, because many of the venues for the Games are located in the Atlanta suburbs.

"There's a lot of IS nervousness about maintaining phone and power availability," says Gail Coopersmith, marketing director at Power Technology Group in Stone Mountain, Ga., the site of the Olympic tennis center. Coopersmith is one of many information systems professionals who plans to telecommute during the Olympics.

Some IS professionals plan to work from branch offices outside Atlanta, according to Ron Wills, data processing placement manager at Robert Half of Atlanta, Inc. in Dunwoody, Ga. Others will volunteer their IS expertise to the Olympics with the blessings of their employers, according to Steve Fisher, an information resources adviser at Georgia-Pacific, which he says is located "about as downtown as you can get."

Many IS observers worry that the Olympics "is going to be a nightmare," as Wills puts it. Nevertheless, just about everyone is caught up in the excitement of hosting the prestigious centennial Games and the tremendous civic pride of welcoming the world to Atlanta. In fact, the local chapter of the Data Processing Management Association (DPMA) is a sponsor of the Paralympic Games, a 10-day event featuring 3,500 disabled athletes from more than 120 countries, to be held Aug. 15-25 in Atlanta. The DPMA is seeking IS volunteers to assist with converting the Olympics' mainframe computer to the Paralympics' client/server systems.

"I'm volunteering for the Paralympics to help out," Coopersmith says, "and also because the highest-level people from the best companies in Atlanta will be there. It will be a great place to network." ∎

Job seekers: A winning strategy

By Jill Vitiello

In Atlanta, the Olympic torch is heating up an already scorching information systems market.

"Atlanta is still one of the strongest markets in the United States," says Ron Wills, data processing placement manager at Robert Half of Atlanta, Inc. in Dunwoody, Ga. He credits the solid, service-based economy, mild climate and reasonable cost of living for attracting stable employers and a talented labor pool to the area.

Unemployment overall in Atlanta is 3.9%, according to the most recent information from the U.S. Bureau of Labor Statistics. That is significantly better than the state unemployment rate of 4.6% and the national rate of 5.8%.

"It's the IS candidates' market, not an employer's market," says Mikki Hubbard, a recruiter at Ernst & Young's Information Technology and Process Improvement practice. "Candidates with SAP and PeopleSoft experience — particularly the R/3 module [of SAP] — can name their price and their terms." Hubbard plans to hire a "fair amount" of IS professionals.

Smalltalk is another hot-ticket item in Atlanta, according to David Still, founder of ProSelect Resources, Inc., an IS contracting firm in Marietta, Ga. "You can't find Smalltalk pros for under $125 an hour," Still says. Candidates with C, C++, PeopleSoft and SAP skills are highly prized as well, he adds.

"The demand for people with experience in Microsoft Access is outstripping the supply," Wills says. He says he sees some of the best opportunities coming from the small to medium-size software development companies popping up in the northern suburbs of Atlanta. "There are only 400,000 people in the city of Atlanta. The real growth is coming from the suburbs growing around the central area, where there are about 4 million people now."

Some companies are having trouble attracting the best talent. "I've never seen such a lack of response to our recruiting efforts," says Margie Raimer, personnel administrator at GEC-Marconi Avionics, Inc., a defense contractor in Norcross, Ga., the heart of Atlanta's high-tech haven.

Raimer is attempting to staff everything from entry-level positions, where the company is willing to hire high-potential college graduates, up through high-level systems administrator positions. She acknowledges that, given the number of IS jobs advertised in the Sunday papers and the recent volatility in the industry, candidates might be skittish about applying to a defense company, even one with a reputation for stability.

Observers agree, though, that many of the best IS candidates are sitting tight in their current jobs, planning to enjoy some involvement in the Olympics rather than make a change in the midst of the chaos. To supplement the core IS staff of 400 that is working on the Games, an additional 2,000 IS volunteers are being recruited this month.

But despite the disruption the Games will undoubtedly cause, most IS professionals will try to carry on business as usual.

"No matter what kind of planning and provisions we make for the Olympics, it will be transparent to our clients, and we'll do everything to continue to deliver the level of service they expect," Hubbard says. ∎

Vitiello is a freelance writer in East Brunswick, N.J.

SOUTHERN HOSPITALITY

In this friendly southern city, networking is a top priority of the IS community. Atlanta boasts unparalleled avenues for IS job searches, including newsletters, hot lines, on-line job listings, networking organizations, career fairs and technology centers.

Resources for information on the Summer Olympics or career opportunities in Atlanta include:

"Job Link Newsletter," published by the Atlanta DPMA, (770) 973-2566. Typical advertisers include Coca-Cola, MCI, BellSouth and Georgia-Pacific.

The Olympic Home Page (http://www.atlanta.olympic.org), sponsored by the Atlanta Committee for the Olympic Games.

The Atlanta Convention and Visitors Bureau's Web site (http://www.atlanta.com/) gets some 15,000 hits a day.

IS professionals can volunteer for the Paralympic Games by calling (404) 724-2865.

Inforim, at 250 Williams St. in downtown Atlanta, offers technical forums, seminars and displays of the most advanced computer technology.

The Olympic stadium under construction

PROGRAMMER ANALYST [2 openings] (Ref: 51196) to plan, develop, test and document computer programs, applying knowledge of programming techniques and computer systems; evaluate user requests for new or modified programs to determine feasibility, cost and time required, compatibility with current system and computer capabilities; consult with users to identify current operating procedures and clarify program objectives; formulate plan outlining steps required to develop program using structured analysis & design; convert project specifications, using flowcharts & diagrams into sequence of detailed instructions & logical steps for coding into language processable by computer; apply knowledge of computer programming techniques & computer language; design, develop, implement and maintain an on-line and batch oriented system and system integration with various applications using IBM 3090, ES 9000, IBM PC WorkStations, Novell NetWare File Servers, RS/6000 Unix Servers, MVS/ESA, Unix System V, Novell NetWare, MS Windows, DB2, Oracle, SQL, C, COBOL, TSO, JCL, QMF, Clist, Unix Shell Scripts, Lotus 1-2-3, IEW/ADW and MS Word. Reqs: Bach. in Computer Science, Systems Analysis, Computer Info. Systems, Computer Engineering, Electrical Engineering, Electronic Engineering, Mathematics or its equiv. in ed. & exp., 2 yrs. exp. in the job offered or 2 yrs. related exp. such as a Programmer, Programmer Analyst, Systems Analyst, Senior Systems Analyst, Systems Executive, Systems Integrator, Software Engineer, Assistant Consultant or Consultant. Will accept 3 yrs. of college ed. plus 3 yrs. exp. in job offered or in a related occup. in lieu of the required ed. & exp. Must have some related exp. including system integration and analyzing, designing and developing systems and using each of the following: DB2, COBOL, SQL, IBM ES 9000, IEW/ADW and LOTUS 1-2-3. $52,500/yr., 40 hrs/wk, 8a-5p. Send resume to 7310 Woodward Ave., Rm. 415, Detroit, MI 48202 & include Ref. #. Employer Paid Ad

Consultant needed for computer consulting firm located in Overland Park, Kansas. Job duties include analysis, design and development of applications using Oracle Designer 2000, Oracle Developer 2000, Oracle Forms, SQL*Forms, SQL*Menu, Oracle Reports, SQL*ReportWriter, PL/SQL, PRO*C, PRO* FORTRAN, DCL and PE Nelson proprietary languages (TPL and ARE) under DEC VAX/VMS environment. Create database Links for sharing the data between the databases using SQL*Net, DEC-NET and TCP/IP. Integration of SAP and MARS applications. Will also use UNIX, Sunsparc, SUN solaris workstations, IBM compatible PC's RDBMS, FTAM, Microsoft Access, SAP, MS Windows Platforms, and ORACLE*CASE. Applicant must have a B.S. degree in engineering or computer science. A foreign degree is acceptable if determined to be equivalent by a recognized authority. In addition, the applicant must have 2 yrs. exp. in the job duties described above or 2 yrs. exp. as a programmer/analyst to include 2 yrs. of analysis, design and development of computer applications and 2 yrs. of SQL*Plus, SQL*Forms, PL/SQL, TCP/IP, Oracle, UNIX, and SQL*ReportWriter. 40 hrs./wk., 8:00 am - 5:00 pm. Mon-Fri, $47,000/yr. Applicant must have proof of legal authority to work in the U.S. Please apply in person to your local Kansas job service or send resume to: Department of Human Resources, KS800085, ATTN: Dan Bruner, 401 S.W. Topeka Blvd., Topeka, KS 66603-3182.

Staff Consultant, 40hrs/wk., 9 am - 5pm, $46,000/yr. Design, develop, implement & test software applications for management information systems. Conversion/migration of software among hardware platforms. Tools: S/36; AS/400; CL/400; RPG/400; UIM; COBOL; SQL/400; OS/400; UNIX. *B.S. in Computer Science as well as two years experience in job offered or as Programmer required. "Two years college + two years software development experience is acceptable in lieu of B.S. Previous experience must include: AS/400; RPG/400; SQL/400; COBOL; S/36. Must have proof of legal authority to work permanently in the U.S. Send two copies of cover letter & resume to: ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 South State Street - 3 South, Chicago, IL 60605. Attention: Leila Jackson, Reference #V-IL-14668-J. NO CALLS. An Employer Paid Ad.

NETWORK ADMINISTRATOR/LAN ANALYST required. Design & implement multiserver/muliprotocol WAN design & frame relay & implement of Wellfleet & Cisco routers/bridges. Install & configure Netware (design NDS) & integrate with Windows NT, AS/400 & UNIX. Develop automated/remote backup & data security systems. Evaluate network traffic/performance, configure client/server database (SQL) servers, create electronic mail/work flow applications in Visual Basic using MAPI & VMI, perform UNIX system administration including NIS, managing NFS, writing UNIX shell scripts & krons, TCP/IP address scheme design & management, WWW servers & managing FTP archives. Bachelor's degree or its equivalent required in Computers or Engineering plus 2 years experience in the job duties described above. Must be a Novel "Certified Network Engineer." Must have proof of legal authority to work in the U.S. Salary - $48,500/year for a 40 hour work week. Interested applicants contact the Arkansas Employment Security Department, P.O. Box 1987, Ft. Smith, AR 72902. Refer to Job Order No. 887708. Ad paid by an Equal Opportunity Employer.

Sr. SAP Applications Consultant - Naperville, IL. Market SAP R/3 application integration services in presales role and oversee delivery of consulting services in post sales environment. Direct SAP R/3 team at client engagements to provide comprehensive consulting services on engagements in various industries including strategic analysis and business process reengineering through hardware selection, application implementation and production. Perform financial and controlling module development. Reqs: Master's or foreign equivalent in Business Administration. 1 yr. exp. in job offered or 1 yr. exp. as Business Planning Analyst. The 1 yr. exp. must be in provision of full scope SAP R/2 or R/3 services including systems strategy development and business process reengineering through production with a focus on financial and controlling modules and selection of hardware architecture. M-F, 8:00 a.m. to 5:00 p.m., 40 hrs/wk. $87,600/yr. Must have proof of legal authority to work permanently in the U.S. Send 2 copies of BOTH RESUME & COVER LETTER to: Illinois Dept. of Employment Security, 401 South State Street - 3 South, Chicago, Illinois 60605, Attn: Janet Aschenbrenner, Ref#V-IL 14470-A. An Employer Paid Ad. No Calls.

Software Designer, 40hrs/wk., 9am - 5pm, $40,800/yr. Design, develop, implement & test software applications for management information systems. Analyze software requirements & perform feasibility studies. Graphical user interface design. Database management. Client/server technology. Development of applications for real time systems & networks. Tools: PCs, VAX servers; MS-Windows, MS-DOS; VMS; UNIFACE; Visual C++; Visual Basic; Microsoft Access; Paradox; C; C++; COBOL; BASIC. M.S. in Computer Science as well as 3 months experience in job offered or as Programmer required. Previous experience must include: C; COBOL; Visual C++; Windows; Paradox; database management application development for networks & real-time systems. Must have proof of legal authority to work permanently in the U.S. Send two copies of cover letter & resume to: ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 South State Street - 3 South, Chicago, IL 60605, Attention: Sheila Lindsey. Reference #V-IL-14744-L. No CALLS. An Employer Paid Ad.

Software Engineer, 40hrs/wk., 9am - 5pm, $45,646/yr. Software design using CASE tools. Liaise with user & provide detailed requirements specification on Workers Compensation Claim, Medical Billing, & Group Health Insurance. Plan the development life cycle using project management techniques & object-oriented programming techniques. Programming, testing & debugging under client/server environment. Tools: FoxPro 2.6 for Windows; VISUAL FOXPRO 3.0; Project Management Utilities under WINDOWS 95. M.S. in "Computer Science as well as 4 years experience in job or as Development Engineer required. *M.S. in any engineering field plus 6 months experience in software development is acceptable in lieu of M.S. in Computer Science. Previous experience must include FoxPro, including 1 yr. with FoxPro for Windows. Must have completed training in Visual FoxPro 3.0. Send resume to: Job Service of Florida, 2312 Gulf-to-Bay Blvd., PO Box C, Clearwater, FL 34618-4090, RE: Job order #FL-1410395.

Corptech Career Index

Projected percent change in number of employees over next twelve months

11.2%	9.6%	9.1%	6.3%	6.2%	4.4%	4.2%	3.8%	3.6%	3.6%	3.5%	3.3%	3.2%	2.5%	2.5%	2.0%	.6%	-.5%

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Computer Careers

Marketplace

ATM still not real world

High prices for services remain a barrier

By Amy Malloy

It doesn't look like this will be the year of ATM after all, despite analysts' predictions that the technology would take off in 1996.

Analysts also predicted there would be huge growth in the ATM market last year. And in 1994, analysts predicted ATM would take hold. So far, it hasn't. The ATM market, at least for wide-area networks, hasn't lived up to analysts' expectations.

Analysts agree that the cost of Asynchronous Transfer Mode (ATM) services must drop before the technology can flourish. At current rates, there's no incentive to adopt ATM for WANs. Other services cost less and meet customers' needs.

At this stage, there are very few paying ATM customers. And no one is sure how many there are. This is partly because several carriers may be taking credit for the same customers. Yet all the major carriers should have paying customers by the end of the year, said John Coons, principal analyst for WANs at Dataquest, Inc., a market research firm in San Jose, Calif. He says 10 service providers had paying ATM customers and five had customers in trials as of last September.

"At this moment, ATM is sort of a smoke-and-mirrors service phenomenon," says Tom Nolle, president of CIMI Corp. in Voorhees, N.J. Service prices and offerings vary from customer to customer. Rough estimates of costs can be determined, but there aren't any concrete prices in place. Nolle says he knows of one carrier that charges about $1,150 per month, plus a charge per megabit for the virtual circuits. He predicts that ATM services at 44.7M bit/sec. (T3) will cost about $900 a month, plus a usage charge, sometime during the next two years.

Carriers and customers currently are in trial stages. They are trying to determine how best to implement and utilize ATM. "1996 is still very much an early adopter phase. It is not going to hit the mass market yet," says Beth Gage, broadband consultant at TeleChoice, Inc., a consultancy in Verona, N.J.

Customers interested in adopting ATM now don't have much information on pricing. "There is no significant ATM taking place right now. What that means is the ATM services that are being provided are really being provided as technology trials or on an individual-case basis," Nolle says.

At this point, users are managing to perform the functions necessary for business without ATM, so carriers need to sell ATM on price. "The thing to keep in mind is that most of the traffic that is going to be carried by initial ATM services is the same traffic we are carrying today with other services. What that means is

"At this moment, ATM is sort of a smoke-and-mirrors service phenomenon."

— Tom Nolle, president, CIMI

the only reason the user is going to choose ATM is because he thinks ATM is going to be cheaper," Nolle says.

Nolle says two possibilities could launch the ATM market. The first is the signing of ATM equipment commitments on customer sites, which he considers a possibility for late 1997 or early 1998. The other is aggressive pricing of ATM made possible by deregulation. Nolle says the latter is more likely to occur. If ATM doesn't cost less than alternate services, it is difficult to justify adoption of the service economically, he says.

But it remains to be seen if deregulation will lead to lower prices. Nolle says carriers probably will need time to comply with the terms of the law. "I don't expect that competitive offerings on the large scale will really be available until the beginning of 1997, so the price wars won't start until then," he says.

A couple of alternatives to ATM may push adoption back even further. Cisco Systems, Inc. offers NetFlow, which is supposed to deliver the speed and quality of ATM by using existing routing devices, and Cabletron Systems, Inc. plans to release SecureFast Virtual Switching with capabilities similar to ATM. Both products are significantly cheaper than ATM, and they could function in ATM's stead until ATM prices decrease.

Selling ATM in increments of 1.5M bit/sec. (T1) would also lower rates, and the number of sites using the service could jump to about 900,000, Nolle predicts. And if ATM were available in T3 speed, Nolle says about 20,000 sites would buy the service. "ATM in 900,000 locations would be a strong basis for building ATM-based application. The message of 1996: Cheap is good; cheaper is better," he says.

Coons estimates ATM service revenue was $30 million last year. This figure will probably double to $60 million this year, he adds. Coons predicts this doubling trend will continue through 1998, after which more drastic increases are expected.

In this early stage, ATM is limited in what it has to offer. "It is the pet rock theory: You can sell a certain number of pet rocks to people who don't look too closely at the value proposition. But that doesn't mean you can sell a lot of pet rocks. ATM is in the pet rock phase right now," Nolle says. ∎

Malloy is an assistant researcher at Computerworld.

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Finance & Investing

A 'Fool' and his money

Participants laud AOL's Motley Fool forum as a way for the individual investor to one-up Wall Street

Investor Dave Ronemus *enjoys the good life from his hot tub, which he purchased with his stock profits. 'The on-line investor can become empowered beyond his wildest dreams,' he declares.*

By Tam Harbert

Some might call them fools. But these investors call themselves "Foolish," with a capital F, and they are darn proud of it.

They are participants in The Motley Fool, an on-line investment forum located in the Personal Finance area of America Online. Since the forum was launched last year by two brothers, Tom and David Gardner, it has attained an almost cult-like following.

One of its most popular features is a series of about 1,500 folders, each devoted to a particular public company, where investors post messages and share information on everything from the company's product sales at their local store to rumors about its chief executive officer. The single most popular folder is Iomega Corp. (Nasdaq: IOMG), a maker of removable storage products whose highly volatile stock is up over 300% since November. The folder receives about 150 postings a day, according to David Gardner. Other active folders get 5 to 20 posts a day.

Many of the Foolish are computer professionals who use the forum to leverage their technical knowledge into profitable investments.

Dave Ronemus (Runngmoose), for example, was drawn to The Motley Fool because of a technical interest in a removable disk drive from Iomega, rather than any interest in investing. With six computers in the family and a job as a process model-ing engineer at Bethforge, Inc. in Bethlehem, Pa., he knows technology.

Once he started reading the Iomega folder, he realized he was missing an opportunity to make a lot of money. He says he was amazed at the amount of high-quality information available to anyone who can spend some time on-line. "The people on there are compulsive over-communicators," he says. "Iomega is the epitome of this, but it happens in other folders, as well."

On-line interactivity represents "a bellwether in the history of computing and the history of investing," Ronemus proclaims. "The on-line investor can become empowered beyond his wildest dreams."

Empowered and enriched

Ronemus, who had never invested in stocks until last year, won't say how much money he's made since he started tapping into The Motley Fool but admits it's a substantial amount.

The Foolish relish in their belief that they are getting instant information that puts them a step ahead of even Wall Street analysts, derisively called the "Wise." One participant may visit a company's factory and post all the details. An engineer may take apart a company's product and report her findings. People from all over the country can monitor how well a company's product is selling in their local stores.

Bill Bronsteen (Cynicalguy), a computer consultant based in New York, is a regular contributor to the Iomega folder. "I've never been so well informed about a stock since the Iomega board," he says.

The interactive on-line experience also fosters a feeling of community, where investors can help one another. For example, Dan Rapaport (CayugaDan), a computer reseller in Ithaca, N.Y., was among the first to get his hands on a new product Iomega recently introduced. He immediately photographed it and scanned the picture onto his company's home page, then posted a notice to that effect on The Motley Fool.

This sort of instant research not only gives individual investors a powerful tool, but also threatens the Wise. "The brokers are running scared," Ronemus says. "An [on-line] community like this can beat the fat cats at their own game."

Roger Manco (Rmanco), a production director at an advertising agency, calls it nothing less than "a new paradigm in investing." Manco, who lives in Yonkers, Conn., attributes a profit of more than $200,000 to his portfolio directly to the on-line forums. Although he's been investing for 15 years, the on-line medium "has opened up the investment world for me."

David Gardner notes that technology professionals have a particular edge. "They have such an advantage over Wall Street, not to mention other investors," he says. "Most of the Wall Street pros are cooped up 40 stories high in their Manhattan skyscrapers, making calls to figure out what these products are, whereas our readers are out there using them." ∎

Browser beware

It's important to remember that participants in on-line forums are usually anonymous and can post anything, regardless of whether it's true. In fact, the Iomega folder on The Motley Fool has been the target of attempts, allegedly by short sellers, to drive the price of Iomega's stock down through the posting of false information, according to several regular participants in the folder.

But participants insist that on-line forums are no more prone to such deviousness than any other medium.

David Gardner, one of the two brothers who founded The Motley Fool, says he doesn't police the on-line area for false comments. Rather, the on-line community does it for him.

"If someone comes in and starts posting bad information, other people will call that person on it right away, and it will be ferreted out and that person will lose his credibility," Gardner says.

But to protect yourself, don't invest based on information from any one source. On-line participants suggest you do your homework on the stock by reading newspapers, books and other resources.

Also, check in to the forum on a regular basis so you can get to know who the regular, and most credible, posters are, they say. ∎

The Week in Stocks

Gainers / Losers

PERCENT

Gainers		Losers	
Security Dynamics Tech. (H)	51.6	Dataware Technologies Inc.	-24.0
Cheyenne Software Inc.	43.5	Sierra Semiconductor	-19.6
Computer Task Group(H)	41.7	NetFrame	-18.4
Micro Focus(H)	33.3	Weitek(L)	-15.0
NetManage Inc.	32.9	Lycos Inc. (L)	-14.5
Peak Technology Group	27.0	MathSoft(H)	-13.9
Computer Horizons(H)	24.7	Truevision Corp.	-12.9
Compuware Corp.	21.5		

DOLLAR

Gainers		Losers	
Security Dynamics Tech. (H)	25.63	IBM	-6.50
Shiva Corp.	14.25	Shared Medical Systems	-5.50
US Robotics	12.13	Octel Communications Corp.	-4.25
Computer Horizons(H)	10.00	Yahoo! Inc.	-4.00
Business Objects	9.75	Network Equipment Tech.	-3.88
Arbor Software(H)	9.38	Sierra Semiconductor	-3.88
Microsoft Corp.	9.25	Microcom Inc.	-3.50
Computer Task Group(H)	9.13	EMC Corp.	-3.00

Industry Almanac

Intel in balancing act

From one day to the next, Wall Street can't seem to decide whether there is a slump in the PC market, and if so, which stocks will be affected by it.

Balancing in the center of that seesaw — perhaps more than any other stock — is **Intel Corp. (Nasdaq:INTC)**, whose microprocessors are used in most PCs.

The stock's ups and downs have depended at least partly on whether the predominant perception of the moment was that Intel could do no wrong or that Intel would be hurt by a slowdown in the PC business, according to Michael Geran, an analyst at Donaldson, Lufkin & Jenrette Securities Corp. in Jersey City, N.J.

Rick Whittington, a semiconductor analyst at Soundview Financial Group in Stamford, Conn., seems to have a hold on Intel. If PC growth is less than 10% this year, Intel will have a down year, Whittington predicts. He says he doesn't see a significant rise in Intel stock unless the PC market shows a growth of at least 20% this year.

Whittington says the company has little earnings momentum because it is in the midst of a transition from one microprocessor generation, the Pentium, to the next, the Pentium Pro.

But Drew Peck, an analyst at Cowen and Co. in Boston, has high hopes for Intel next year. He says that is when the company will see strong demand from corporate Amer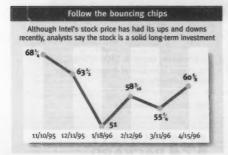ica for its Pentium Pro — driven by a stable version of Microsoft Corp.'s Windows NT 4.0 — and from the consumer market for its MMX processor, due at the end of the year. "1997 will be one hell of a product cycle for microprocessors," Peck says.

Investors could buy the stock this year when its price is soft and then hold on for an upward swing in 1997, he says.

— Tam Harbert and Stewart Deck

Follow the bouncing chips

Although Intel's stock price has had its ups and downs recently, analysts say the stock is a solid long-term investment

Date	Price
11/10/95	68¼
12/11/95	63½
1/18/96	51
2/12/96	58 3/16
3/11/96	55¼
4/15/96	60 5/8

Stock Tables
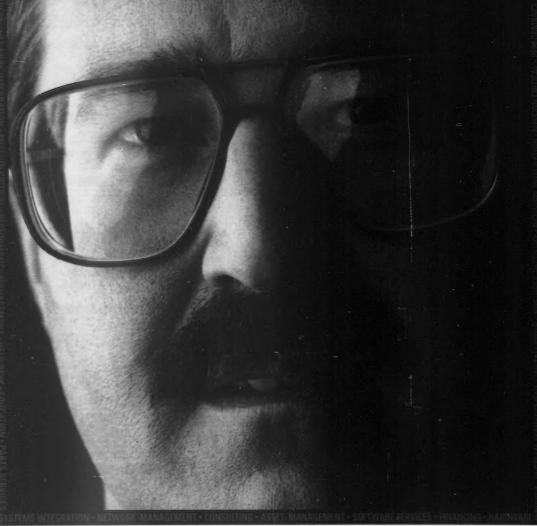
Communications and Network Services — UP 4.05%

Exch	52-Week Range (Hi)	(Lo)	Company	Apr. 19 3 PM	Net Wk Change	Pct Wk Change
COMS	53.63	25.75	3 COM CORP.	39.88	3.50	9.6
AIT	66.88	42.25	AMERITECH CORP.	58.38	3.50	6.4
AXE	22.13	15.63	ANIXTER INT'L. (L)	16.13	0.00	0.0
APTS	15.00	2.75	APERTUS TECH.	3.81	0.06	1.7
T	68.88	47.88	AT&T	61.00	-2.00	-3.2
ASND	62.00	8.13	ASCEND COMMUNICATIONS	59.94	4.19	7.5
BNYN	18.63	6.00	BANYAN SYSTEMS INC.	7.63	0.50	7.0
BAY	50.00	21.75	BAY NETWORKS INC.	29.50	2.88	10.8
BBN	48.75	16.50	BBN CORP.	26.13	2.25	9.4
BEL	80.38	52.00	BELL ATLANTIC CORP.	64.38	4.25	7.1
BLS	45.88	29.13	BELLSOUTH CORP.	39.13	2.50	6.8
BRKT	40.25	9.13	BROOKTROUT TECHNOLOGY (H)	39.50	3.00	8.2
CS	87.75	45.38	CABLETRON SYSTEMS	67.38	3.63	5.7
CSCC	92.75	20.38	CASCADE COMMUNICATIONS	87.25	-0.50	-0.6
CGRM	25.13	12.75	CENTIGRAM COMMUNICATIONS	22.94	0.81	3.7
CSCO	51.00	18.50	CISCO SYSTEMS INC.	47.50	1.13	2.4
CLIX	11.38	4.50	COMPRESSION LABS INC.	5.13	0.00	0.0
CMNT	12.75	4.00	COMPUTER NETWORK TECH.	5.75	0.31	5.7
XCOM	14.50	8.75	CROSSCOMM	11.94	0.56	4.9
DIGI	64.00	21.88	DSC COMMUNICATIONS	28.50	1.88	7.0
FORE	75.00	25.50	FORE SYSTEMS INC.	68.50	8.50	14.2
GDC	21.88	9.25	GENERAL DATACOMM INDS.	11.38	0.63	5.8
GSX	42.50	28.00	GENERAL SIGNAL NETWORKS	36.63	0.38	1.0
GTE	49.25	31.88	GTE CORP.	42.63	0.13	0.3
LU	33.50	29.75	LUCENT TECH.	31.25	-0.50	-1.6
MCIC	31.13	19.09	MCI COMMUNICATIONS CORP.	28.19	0.19	0.7
MICM	12.50	5.50	MICOM COMMUNICATIONS CORP.	8.31	0.69	9.0
MNPI	34.50	9.13	MICROCOM INC.	23.88	-3.50	-12.8
NETM	34.00	9.38	NETMANAGE INC.	13.13	3.25	32.9
NTRX	8.75	3.63	NETRIX CORP.	4.88	-0.13	-2.5
NCDI	12.00	2.88	NETWORK COMPUTING DEVICES (L)	3.13	0.00	0.0
NWK	42.00	19.75	NETWORK EQUIPMENT TECH.	26.38	-3.88	-12.8
NETG	46.50	17.25	NETWORK GENERAL	39.63	1.88	5.0
NN	59.00	25.00	NEWBRIDGE NETWORKS CORP. (H)	59.00	3.38	6.1
NT	50.88	31.50	NORTHERN TELECOM LTD.	50.50	2.38	4.9
NOVL	23.25	11.38	NOVELL INC.	13.00	-0.38	-2.8
NYN	59.25	39.25	NYNEX CORP.	53.25	3.13	6.2
OCTL	50.50	18.00	OCTEL COMMUNICATIONS CORP.	44.25	-4.25	-8.8
ODSI	43.25	17.00	OPTICAL DATA SYSTEMS INC.	21.25	1.50	7.6
PCTL	44.72	19.38	PICTURETEL CORP.	32.38	3.63	12.6
PTON	10.75	4.75	PROTEON INC.	5.44	0.00	0.0
RACO	7.88	4.75	RACOTEK INC.	4.75	0.00	0.0
RETX	6.75	1.81	RETIX	6.63	0.44	7.1
SFA	24.63	11.38	SCIENTIFIC ATLANTA INC.	18.13	1.00	5.8
SHVA	107.00	34.50	SHIVA CORP.	107.00	14.25	15.4
SBC	60.25	42.63	SOUTHWESTERN BELL CORP.	49.50	2.00	4.2
FON	45.50	29.25	SPRINT CORP.	39.75	2.00	5.3
SMSC	23.50	12.50	STANDARD MICROSYSTEMS CORP.	15.88	1.25	8.5
STRM	44.50	16.00	STRATACOM INC.	39.13	3.00	8.3
TBIT	8.63	2.38	TELEBIT CORP.	5.63	-0.38	-6.3
USRX	139.75	31.63	US ROBOTICS	137.50	12.38	9.9
USW	48.38	28.38	US WEST INC.	32.25	-0.13	-0.4
XIRC	15.38	8.88	XIRCOM	14.50	0.63	4.5
XYLN	73.50	51.25	XYLAN CORP.	64.50	1.25	2.0

PCs and Workstations — UP 0.00%

Exch	Hi	Lo	Company	Apr. 19	Net	Pct
AALR	9.63	4.75	ADVANCED LOGIC RESEARCH	7.00	0.25	3.7
AAPL	50.13	23.00	APPLE COMPUTER INC.	24.88	-0.75	-2.9
ASTA	19.13	4.63	AST RESEARCH INC.	4.88	-0.13	-2.5
CPQ	56.75	32.00	COMPAQ COMPUTER CORP.	42.25	2.88	7.3
DELL	49.38	22.88	DELL COMPUTER CORP.	41.38	1.50	3.8
GATE	37.50	17.38	GATEWAY 2000 INC.	35.88	4.63	14.8
HWP	104.13	62.00	HEWLETT PACKARD CO.	100.50	5.13	5.4
MUEI	29.88	9.00	MICRON INTERNATIONAL INC.	10.38	-0.25	-2.4
NIPNY	75.13	51.00	NEC AMERICA	61.63	3.63	6.3
SGI	45.63	21.13	SILICON GRAPHICS	25.50	0.75	3.0
SUNW	57.13	18.00	SUN MICROSYSTEMS INC.	49.25	1.13	2.3

Large Systems — UP 5.02%

Exch	Hi	Lo	Company	Apr. 19	Net	Pct
AMH	13.63	6.75	AMDAHL CORP.	12.88	2.25	21.2
CYR	29.25	18.13	CRAY RESEARCH INC.	25.25	0.63	2.5
DGN	19.13	7.13	DATA GENERAL CORP.	16.88	1.38	8.9
DEC	76.50	35.13	DIGITAL EQUIPMENT CORP.	54.63	2.25	4.3
IBM	128.88	83.13	IBM	105.13	-6.50	-5.8
MDCD	16.13	3.00	MERIDIAN DATA INC.	16.13	2.38	17.3
NETF	7.50	3.88	NETFRAME	3.88	-0.88	-18.4
SQNT	35.38	10.13	SEQUENT COMPUTER SYS.	13.94	1.31	10.4
SEQS	10.00	2.88	SEQUOIA SYSTEMS INC.	2.94	-0.13	-4.1
SRA	36.13	23.00	STRATUS COMPUTER INC.	28.00	0.75	2.8
TDM	17.50	8.38	TANDEM COMPUTERS INC.	10.25	1.50	17.1
TRCD	5.75	2.00	TRICORD SYSTEMS	4.38	0.63	16.7
UIS	13.63	5.50	UNISYS CORP.	6.13	0.00	0.0

Software — UP 2.65%

Exch	Hi	Lo	Company	Apr. 19	Net	Pct
ADBE	74.25	30.00	ADOBE SYSTEMS INC.	35.25	2.25	6.8
AMSWA	8.75	3.50	AMERICAN SOFTWARE INC.	4.75	0.50	11.8
APLX	41.75	8.00	APPLIX INC.	36.75	2.00	5.8
ARSW	62.75	25.75	ARBOR SOFTWARE (H)	62.75	9.38	17.6
ACAD	53.00	27.75	AUTODESK INC.	42.00	0.13	0.3
BACH	11.88	4.63	BACHMAN INFO. SYSTEMS	9.25	0.13	1.4
BGSS	42.00	28.50	BGS SYSTEMS INC.	32.75	-1.50	-4.4
BMCS	61.38	27.63	BMC SOFTWARE INC.	56.50	1.50	2.7
BOOL	26.38	18.75	BOOLE AND BABBAGE	25.75	0.25	1.0
BORL	21.25	7.75	BORLAND INT'L INC.	18.25	1.31	7.7
BOBJY	99.75	29.25	BUSINESS OBJECTS	90.25	9.75	12.1
CESH	5.94	1.38	CE SOFTWARE	2.63	0.13	5.0
CYE	27.88	12.38	CHEYENNE SOFTWARE INC.	22.25	6.75	43.5
COGNF	63.25	18.88	COGNOS INC.	59.00	1.75	3.1
CA	76.50	37.00	COMPUTER ASSOCIATES	70.25	2.50	3.7
CVWR	15.50	4.88	COMPUTERVISION CORP.	10.38	-0.75	-6.7
CPWR	56.00	15.50	COMPUWARE CORP.	28.25	5.00	21.5
CSRE	27.25	10.88	COMSHARE INC.	21.50	-0.50	-2.3
COSFF	19.50	8.38	COREL CORP.	10.50	0.81	8.4
DWTI	16.00	5.75	DATAWARE TECHNOLOGIES INC.	5.75	-1.81	-24.0
DSLGF	32.25	9.75	DISCREET LOGIC INC.	16.38	0.88	5.6
FILE	67.00	30.25	FILENET CORP.	51.88	1.94	3.9
DDDDF	8.25	3.38	4TH DIMENSION	5.63	-0.25	-4.3
FTPS	40.63	8.13	FTP SOFTWARE INC. (L)	9.38	0.38	4.2
GSOF	26.00	7.50	GUPTA (L)	9.00	1.00	12.5
GPTA	11.50	4.13	GUPTA (L)	4.75	-0.25	-5.0
HYSW	28.38	9.75	HYPERION SOFTWARE CORP.	11.25	0.50	4.7
IRIC	18.63	10.00	INFORMATION RESOURCES	14.00	0.13	0.9
IFMX	36.75	16.88	INFORMIX CORP.	23.75	4.00	20.3
INGR	20.13	10.00	INTERGRAPH CORP.	14.50	0.00	0.0
LEAF	12.63	4.63	INTERLEAF INC.	8.38	-0.25	-2.9
ISLI	26.25	8.75	INTERSOLV INC.	15.88	2.38	17.6
INTU	89.75	29.63	INTUIT INC.	47.38	1.88	4.1
LGWX	20.25	10.88	LOGIC WORKS	17.50	-2.00	-10.3
MGICF	13.75	3.63	MAGIC SOFTWARE ENTERPRISES	10.13	-0.88	-8.0
MANU	20.50	9.50	MANUGISTICS GROUP INC.	13.75	0.38	2.8
MAPS	40.00	10.00	MAPINFO CORP.	12.75	0.75	6.3
MATH	9.25	2.75	MATHSOFT(H)	7.75	-1.25	-13.9
MCAF	65.25	18.13	MCAFEE ASSOCIATES	57.38	-0.88	-1.5
MENT	22.88	10.88	MENTOR GRAPHICS	14.25	0.44	3.2
MIFGY	18.00	8.25	MICRO FOCUS (H)	18.00	4.50	33.3
MGXI	15.13	5.88	MICROGRAFX INC.	14.38	1.38	10.6
MSFT	110.13	74.00	MICROSOFT CORP.	110.13	9.25	9.2
ORCL	36.75	18.75	ORACLE CORP. (H)	32.25	3.00	10.3
PMTC	40.25	20.88	PARAMETRIC TECHNOLOGY	38.38	0.88	2.3
PARQ	14.50	6.63	PARCPLACE SYSTEMS INC.	10.13	1.38	15.7
PSFT	60.50	19.63	PEOPLESOFT	55.88	6.13	12.3
PTEC	16.13	6.75	PHOENIX TECHNOLOGIES	14.75	0.63	4.4
PSQL	16.88	3.13	PLATINUM SOFTWARE	7.94	0.94	13.4
PLAT	26.00	11.25	PLATINUM TECHNOLOGY	13.88	0.63	4.7
PRGS	38.00	14.63	PROGRESS SOFTWARE CORP. (L)	15.25	-0.38	-2.4
RNBO	26.75	16.00	RAINBOW TECHNOLOGIES INC.	18.88	1.63	9.4
ROSS	7.75	2.19	ROSS SYSTEMS	4.50	0.06	1.4
SCOC	14.00	5.50	SCO INC.	7.25	0.13	1.8
SDTI	75.25	16.38	SECURITY DYNAMICS TECH. (H)	75.25	25.63	51.6
SKEY	11.50	5.75	SOFTKEY INTERNATIONAL INC.	25.88	1.44	5.9
SPCO	5.13	2.19	SOFTWARE PUBLISHING CORP.	2.75	-0.13	-4.3
SQAX	30.25	16.00	SQA INC.	29.13	-0.13	-0.4
SOTA	14.88	6.63	STATE OF THE ART	13.25	1.00	8.2
SSW	75.63	32.88	STERLING SOFTWARE INC.	73.63	2.50	3.5
SDRC	37.38	10.00	STRUCT. DYNAMICS RESEARCH	32.25	-2.25	-6.5
SYBS	39.75	19.88	SYBASE INC.	24.69	0.44	1.8
SYMC	33.25	9.88	SYMANTEC CORP.	14.75	1.88	14.6
SNPS	38.50	21.00	SYNOPSYS	36.25	5.25	16.9
SSAX	30.63	12.63	SYSTEM SOFTWARE ASSOC.	23.50	1.00	4.4
SYSF	18.13	8.75	SYSTEMSOFT CORP.	17.00	1.44	9.2
TRUV	10.13	4.00	TRUEVISION CORP.	6.75	-1.00	-12.9
VIEW	15.38	8.38	VIEWLOGIC SYSTEMS (H)	14.25	1.75	14.0
VMRK	21.50	5.75	VMARK SOFTWARE INC.	7.75	0.38	5.1
WALK	12.25	4.63	WALKER INTERACTIVE SYSTEMS (H)	12.25	1.25	11.4
WALL	23.25	13.00	WALL DATA INC.	17.75	2.25	14.5
WANG	25.38	12.38	WANG LABORATORIES INC.	25.38	0.75	3.0

Internet — UP 5.13%

Exch	Hi	Lo	Company	Apr. 19	Net	Pct
AMER	60.00	16.75	AMERICA ON-LINE	59.88	7.50	14.3
LCOS	29.25	14.00	LYCOS INC. (L)	14.75	-2.50	-14.5
NETC	91.50	19.27	NETCOM ON-LINE	30.50	3.50	13.0
NSCP	87.00	22.88	NETSCAPE COMM. CORP.	56.00	4.50	8.7
PSIX	29.00	6.75	PSINET	10.00	0.50	5.3
QDEK	39.50	4.50	QUARTERDECK CORP.	13.88	0.00	0.0
SPYG	61.00	13.25	SPYGLASS INC.	23.38	-0.88	-3.6
UUNT	98.75	21.75	UUNET TECH.	42.13	6.13	17.0
YHOO	43.00	24.50	YAHOO! INC.	28.88	-4.00	-12.2

Semiconductors — UP 0.69%

Exch	Hi	Lo	Company	Apr. 19	Net	Pct
AMD	39.25	16.13	ADVANCED MICRO DEVICES	17.50	0.25	1.4
ADI	30.13	16.63	ANALOG DEVICES INC.	24.13	-1.88	-7.2
CHPS	15.88	7.38	CHIPS AND TECHNOLOGIES	9.25	0.50	5.7
CRUS	61.13	17.00	CIRRUS LOGIC	17.88	0.13	0.7
CY	27.25	10.00	CYPRESS SEMICONDUCTOR CORP.	13.25	0.25	1.9
CYRX	49.75	18.25	CYRIX	29.63	3.81	14.8
INTC	78.38	46.00	INTEL CORP.	65.50	5.50	9.2
LLSI	62.50	22.50	LSI LOGIC CORP.	33.00	2.63	8.6
LSCC	43.00	25.63	LATTICE SEMICONDUCTOR	30.38	2.63	9.5
MCRL	32.50	12.25	MICREL SEMICONDUCTOR INC.	12.88	-0.13	-1.0
MU	94.75	27.50	MICRON TECHNOLOGY	33.88	1.00	3.0
MOT	82.50	44.75	MOTOROLA INC.	59.63	4.13	7.4
NSM	33.63	13.50	NATIONAL SEMICONDUCTOR	15.13	1.00	7.1
SERA	28.75	9.75	SIERRA SEMICONDUCTOR	15.88	-3.88	-19.6
TXN	83.75	42.75	TEXAS INSTRUMENTS	55.38	3.63	7.0
TXCC	14.25	7.88	TRANSWITCH CORP.	12.50	0.25	2.0
VLSI	39.13	10.75	VLSI TECHNOLOGY	15.25	1.75	13.0
WWTK	6.88	1.06	WEITEK (L)	1.06	-0.19	-15.0
WDC	22.13	14.13	WESTERN DIGITAL CORP.	19.50	0.25	1.3
XLNX	55.50	22.63	XILINX	33.13	2.75	9.1
ZLG	54.13	25.00	ZILOG INC.	35.88	0.63	1.8

Peripherals and Subsystems — UP 3.92%

Exch	Hi	Lo	Company	Apr. 19	Net	Pct
APCC	25.88	7.88	AMERICAN POWER CONVERSION	10.88	0.50	4.8
ADPT	56.38	29.25	ADAPTEC INC.	51.94	3.69	7.6
CBEX	13.13	4.63	CAMBEX CORP.	5.50	-0.13	-2.2
CGN	7.25	2.63	COGNITRONICS CORP.	6.38	0.63	16.1
CREAF	14.13	5.75	CREATIVE TECHNOLOGIES INC.	6.38	0.38	6.1
RACE	13.13	3.63	DATA RACE INC.	4.25	0.25	6.3
DTM	9.38	4.13	DATARAM CORP.	4.94	0.19	3.9
EMC	27.38	13.00	EMC CORP.	18.38	-3.00	-14.0
EMLX	28.50	4.38	EMULEX CORP.	14.88	-0.25	-1.7
ESCC	26.00	13.00	EVANS AND SUTHERLAND (H)	25.63	1.38	5.7
EXBT	18.13	11.00	EXABYTE (H)	15.88	-1.25	-7.3
IISLF	4.25	1.50	INTELLIGENT INFO. SYSTEMS	1.94	-0.25	-11.4
HMG	36.75	3.13	KOMAG INC.	36.75	3.75	11.4
IPLSA	7.88	2.50	IPL SYSTEMS INC.	5.63	0.13	2.3
KMAG	37.50	16.38	KOMAG INC.	30.00	3.50	13.2
MTSI	37.75	14.75	MICRO TOUCH SYSTEMS INC.	15.63	-0.13	-0.8
PEAK	34.75	16.75	PEAK TECHNOLOGY GROUP	23.50	5.00	27.0
PNCL	19.75	5.88	PINNACLE MICRO INC.	9.38	1.38	17.2
PTNX	38.75	13.50	PRINTRONIX INC.	18.75	2.00	11.9
AQM	6.38	3.25	QMS INC.	5.50	0.00	0.0
QNTM	28.50	15.88	QUANTUM CORP.	18.94	0.19	1.0
RDUS	16.00	4.94	RADIUS INC.	2.44	-0.31	-11.4
SEG	67.75	27.50	SEAGATE TECHNOLOGY	58.00	0.38	0.7
STK	31.75	17.88	STORAGE TECHNOLOGY	24.50	-1.00	-3.9
STLC	7.50	1.75	STREAMLOGIC CORP.	5.69	0.44	8.3
TEK	61.88	29.75	TEKTRONIX INC.	36.00	5.00	16.1
XRX	144.63	109.38	XEROX CORP.	134.25	7.00	5.5

Services — UP 4.74%

Exch	Hi	Lo	Company	Apr. 19	Net	Pct
AMSY	27.38	12.50	AMERICAN MGMT. SYSTEMS	26.50	1.38	5.5
ANLY	37.75	24.75	ANALYSTS INT'L.	37.13	2.63	7.6
AUD	43.38	30.25	AUTO DATA PROCESSING	34.75	0.75	2.2
CATP	64.75	27.25	CAMBRIDGE TECH. PARTNERS (H)	64.75	7.38	12.9
CEN	47.50	31.63	CERIDIAN CORP.	46.50	2.88	6.6
CDO	23.75	17.63	COMDISCO INC.	21.75	0.25	1.2
CHRZ	50.50	7.63	COMPUTER HORIZONS (H)	50.50	10.00	24.7
CSC	80.75	46.50	COMPUTER SCIENCES	75.38	3.50	4.9
TSK	31.00	10.13	COMPUTER TASK GROUP (H)	31.00	9.13	41.7
CPU	60.63	20.25	COMPUSA INC. (H)	60.13	3.13	5.5
CDAT	26.13	2.75	CONTROL DATA SYSTEMS INC.	23.00	1.75	8.2
EGGS	14.25	5.00	EGGHEAD DISCOUNT SOFTWARE	9.63	-1.06	-9.9
GME	58.00	39.00	GENERAL MOTORS E (EDS)	55.13	2.13	4.0
INAC	19.38	8.13	INACOM CORP.	18.00	0.00	0.0
INEL	14.63	3.50	INTELLIGENT ELECTRONICS	5.75	-0.75	-11.5
KEA	36.75	18.25	KEANE INC.	36.75	6.50	21.5
MSEL	8.38	2.25	MERISEL	2.56	0.00	0.0
MICA	15.00	7.63	MICROAGE INC.	10.25	-0.19	-1.8
PAYX	63.81	28.75	PAYCHEX (H)	63.81	3.19	5.3
PMS	54.25	42.63	POLICY MANAGEMENT SYS.	44.88	0.88	2.0
REY	45.25	25.88	REYNOLDS AND REYNOLDS	42.88	-0.50	-1.2
SCBI	25.00	15.75	SCB TECHNOLOGY INC. (H)	24.75	0.75	3.1
SEIC	24.50	18.00	SEI CORP.	22.00	0.00	0.0
SMED	72.13	32.00	SHARED MEDICAL SYSTEMS	62.50	-5.50	-8.09

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CONTACTING US BY PHONE
All editors can be contacted at our main phone number, (508) 879-0700, unless otherwise noted below. Our **24-hour news tip line** is (508) 820-8555. For **subscriptions**, call (800) 669-1002, **back issues**, call (508) 820-8129, **reprints**, call (508) 820-8125. Our **main fax number** is (508) 875-8931.

CONTACTING US BY E-MAIL
Our Web address is www.computerworld.com. All of our staff members can be reached via E-mail on the **internet** using the form firstname_lastname@cw.com. IDG News Service correspondents can be reached using the form firstname_lastname@idg.com. **Subscription** inquiries go to circulation@cw.com.

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CONTACTING CW EDITORS
We invite our readers to call or write with comments and ideas. It is best to submit ideas to one of the department editors as well as to the appropriate beat reporter.

Editor	Paul Gillin (508) 620-7724
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Sections Editor	Johanna Ambrosio (508) 820-8553
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Viewpoint Editor	Mitch Betts (202) 347-6718

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CW Guide	Cathleen Gagne (508) 620-7729

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COMPUTERWORLD CLIENT/SERVER JOURNAL
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IDG NEWS SERVICE CORRESPONDENTS

Paris bureau chief	Marc Ferranti (33) 1-4904-8001
Paris correspondent	Cara Cunningham (33) 1-4904-7917
Munich correspondent	Torsten Busse (49) 89-811-6057
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Thirsting for Java

in February, corporate developers have been working furiously to create Java programs for customers on the Internet and employees on corporate intranets. Developers download between 2,000 and 3,000 copies of Sun's free Java development environment each week from Sun's official Java Web site. Commercial Java development products are also downloaded from other Internet sites.

Look before you leap

Developers, on the other hand, are using everything *but* Windows 3.1 as they jump on the Java bandwagon. And Netscape's delays in supporting Java for Windows 3.1 are further delaying corporate developers who want to use Java for Internet-based client/server applications.

"Netscape tells us that they will have it sometime soon — this week, next week, whatever week. We don't know," said a project manager at a large East Coast pharmaceutical firm. With several thousand Windows 3.1 PCs and no plans for Windows 95, the com-

pany has had to halt development of several intranet projects that would use Java on the desktop, the manager added.

It is also a problem for companies that hope to use Java to communicate with other businesses.

"We're looking at a business-to-business solution here, and we can't dictate to customers that they've got to upgrade to Windows 95 before they can use our application," said John Gawkowski, Java software architect at printing giant R. R. Donnelley and Sons Co. in Chicago.

Unlike Windows 95 and NT, older operating systems such as Windows 3.1 and the Macintosh weren't designed to let applications launch several processes, or threads, at once. Java depends on that capability.

Retrofitting Windows 3.1 and Macintosh with support for threads has taken much more engineering effort than other platforms required, a Netscape spokesperson said.

& **Want to retrofit** your applications to Java? See page 47.

New arrivals

Netscape recently began shipping a Java-enabled version of Navigator for the Power Macintosh. But Java for Windows 3.1 and 680x0 Macintosh won't arrive until the second or third quarter.

Even when Java Web brows-

ers are available for those platforms, they will support only Java applets, the small programs that can be downloaded and run within a browser. More robust Java client/server applications require runtime support, which isn't available for Windows 3.1 or the Macintosh.

But help is on the way. Sun plans to release its Java environment for Macintosh by early

next month, a company spokesperson said. And IBM is working on a Windows 3.1 version that should be available by October, said Simon Phipps, a marketing manager at IBM. IBM, which is using multithreading technology it developed for earlier Windows products, has already started to license the technology to other vendors, Phipps said. — *Frank Hayes*

Who can run Java?

Unless you use Windows 95 and NT, you won't get Java support immediately

PERCENTAGE OF OPERATING SYSTEMS INSTALLED

48% 27% 9% 9% 7%

OPERATING SYSTEM	BROWSER SUPPORT	JAVA APPLICATION SUPPORT
Windows 3.x:	Q2 or Q3	By October
DOS:	None planned	None planned
Macintosh:	Power Mac: Now Macintosh 680x0: Q2 or Q3	Early May
Win 95 and NT:	Available now	Available now
OS/2:	In beta	In beta

Total 1995 installed units at U.S. industries: 44.3 million

■ Windows 3.x   ■ DOS   ■ Macintosh   ■ Win 95 and NT   ■ OS/2

Source: Computer Intelligence InfoCorp, La Jolla, Calif.

Feds face year 2000 crisis

In the short term, procrastinating government agencies will soon find themselves between a rock and a hard place, with insufficient staffs to deal with the problem and no budget for a crash outsourcing job, said Bill Goodwin, president of 2000AD, Inc., a consulting firm in New York.

"The government may just have to call for volunteers, a Peace Corps kind of group, to go to Washington to fix the mess," Goodwin said. "I can see it getting that bad."

Indeed, experts warn that if agencies don't contract soon with vendors to help with the massive

conversion, qualified firms will be booked solid and unable to help.

While the year 2000 issue presents a significant challenge for most large organizations, it is especially daunting for the U.S. Department of Defense. The Defense Department has more systems written in more computer languages than any organization in the world. Many of its millions of lines of code are undocumented, and source code is no longer available for some applications, Pentagon officials said.

"If our logistics systems process dates incorrectly, people and equipment cannot be delivered to the correct place at the correct

time," said Emmett Paige, assistant secretary of defense for command, control, communications and intelligence. "This, of course, could have catastrophic consequences. Some of our weapons systems would not function properly, [and] our databases would be greatly corrupted."

"Finding, fixing and testing date-related processing in our systems will require significant resources — resources that generally have not been planned for," he added.

While all of the military services have launched vigorous year 2000 systems projects, Paige said they won't be given additional funds to get the job done.

He also said date routines in hardware may be especially hard to fix if the hardware is obsolete. "We may find the year 2000 problem [occurs] in computer chips used only by the Defense Department, [and] those chips may no longer be in production," he told the House Subcommittee on Government Management, Information and Technology. This will make it difficult for agencies to go back to vendors and ask for versions that solve the year 2000 problem.

Other agencies whose missions require long-range planning claim they have the problem under control. The Social Security Administration began planning changes to

its 30 million lines of software in 1989, said Dean Mesterharm, deputy commissioner for systems.

Mesterharm said the agency estimates it will spend $30 million to change its systems. It is expected to complete the fixes by Dec. 31, 1998, which will leave a full year for final checkout, he said.

Outside forces

Some officials say their systems will be ready, but they worry about data that comes from other systems (see story at right). George Munoz, chief financial officer at the U.S. Department of the Treasury, said the agency's fallback plan will be interfaces, or firewalls, that edit dates that come into a system from another system. "If the dates are corrupt, we won't accept the data," he said.

The Defense Department isn't the only agency that uses date logic in systems that protect public safety. Goodwin said a chip used in a commercial air-traffic control radar recognizes year "00" as an "interrupt," which tells the radar's real-time operating system that an external event has occurred.

It isn't obvious how such systems will behave on Jan. 1, 2000, Goodwin said. "It depends on how the fellow that wrote the program handles an interrupt," he said. "The effect is unknown, and that is a real concern."

Year 2000

An expensive date

Estimated cost and effort for repairing the Defense Department's date-handling software

System type	Cost per line of code	Staff-years per million lines of code
Information systems	$0.75 to $1.70	9 to 16
Command and control systems	$1 to $8.52	8 to 71
Total cost – $1 billion		

Source: Mitre Corp., McLean, Va., and U.S. Department of Defense, Washington

Stateside shortcomings

Federal IS managers worry that even if their systems are year 2000-compliant, many of the state systems with which they must communicate won't be.

They have good cause to worry. A survey by the National Association of State Information Resource Executives in Lexington, Ky., found that 40% of the states haven't begun year 2000 projects, and only 10% have started statewide plans.

George Haynes, research director at IDC Government in Falls Church, Va., said Nebraska is one of the few states that has done a good job planning for 2000. The state estimated it will cost $28 million to convert its 364 systems, at an average cost of $2.32 per line of code, he said.

"The states are just waiting for someone to ride in on a white horse and save them," said Kevin Schick, a research director at Gartner. —*Gary H. Anthes*

Think you have security? Don't count on it

Charles Babcock

Novell's NetWare 4.1, with its improved security, is slowly being adopted across NetWare user organizations. But just because you're converting to Version 4.1 doesn't mean you still don't face a major risk of intrusion.

The continued widespread use of NetWare 3.x, combined with end-user security lapses, leaves you as exposed as ever — even during the transition era.

Design flaw

NetWare 3.x's bindery design created a circumstance that was almost certain to generate security breaches. The bindery gives an end user access to just one server. To get to another NetWare segment, the user has to log in to a second server, using a different name and password. And the user has to repeat the process each time he needs to extend his reach.

To remember all those passwords, the user commonly writes them down on a Post-it note and puts the yellow stickie on the side of his terminal, inside his desk drawer or in a Rolodex file under

"P" for password (clever, eh?). And while you may have rules and regulations that govern how passwords are stored, they are rarely so thorough that a skilled intruder can't see through them if he happens to be in an end user's chair.

It would take the average break-in artist about as long to find that Post-it note as it takes a skilled car thief to get into your locked car — maybe 30 seconds. But what's at risk from these intruders is something much more valuable than your car. It's corporate data, the prime asset entrusted to IS.

Robert Harbison, a consultant in Sausalito, Calif., who praises NetWare 4.1 security, says he has seen end-user security breaches "every day in the 30 years I've been in the computer business."

I don't mean to pick on NetWare, although it still underlies 65% of the PC LANs in existence. IBM's LANserver functions in a similar way; different log-ins and

passwords are required to move from one domain to another. This will change when Directory Security Services becomes available later this year.

I asked Sandra Carter, product manager for Directory Security Services at IBM in Austin, Texas, how many passwords she uses. "Five," she said. "I keep them on a yellow stickie."

"Where do you post the sheet?" I asked, trying to break down her defenses.

"I can't tell you," she said.

I'll bet her secretary knows.

All right, it's an imperfect world, and it's not IBM's or Novell's fault that end users don't know how to keep tight control over their passwords. Some users

have them on a dollar bill they always carry with them or scattered through their appointment book.

Cover all bases

But once an intruder gains access to your NetWare 3.x network, he can probably review the autoexec.ncf file. This file has the password required for remote management access if the server has been enabled for remote access. Often, the remote management access password is the same as the NetWare 3.x's supervisor password, since the system administrator frequently has to log in from a remote location to deal with problems.

And once a supervisor password is in the hands of an intruder, how safe is the rest of your system, including the part that has been upgraded to a Version 4.1 LAN? "If you have a log-in and a password, you're not an intruder, as far as NetWare 4.1 is concerned. You're a legitimate log-on," Harbison says.

And 3.x users, if they rely on Post-it notes, will have their NetWare 4.1 password there as well.

Even if IS has done an excellent job of training NetWare users on security, what about the 100 users who were added in scattered locations last month?

Security is a combination of IS policies, consistent implementation and built-in systems safeguards. The truth is, it's next to impossible to keep them perfectly synchronized.

If you are upgrading to NetWare 4.1, look at your security needs and accelerate the upgrade process. If you are using OS/2 and LANserver, urge IBM to release Directory Security Services as soon as possible. If you are using Windows NT, urge Microsoft to keep improving its security, which is at C2 level on the client but still falls short on NT Server.

You may think you have security, but remember, every PC added to your network is a new hole in a huge Swiss cheese you've been assigned to guard.

Babcock is *Computerworld*'s technical editor. His Internet address is charles_babcock@cw.com.

Inside Lines

Leggo my logo

NCR is trying to find a legal logo loophole. Gartner Group recently threatened to take legal action if NCR doesn't stop using its newly revised mark. Gartner executives claimed the letters "NCR" infringe on the interlocking "Gs" logo that the Stamford, Conn.-based advisory service uses. Last week, NCR filed a lawsuit in U.S. district court in Dayton, Ohio, seeking a declaratory judgment that its new logo doesn't infringe on Gartner's U.S. trademark rights.

Bay watch: Stay tuned

Amid rumors of management changes and company reorganizations, Bay Networks' board of directors met last Thursday but made no changes. A spokesman for the company said Bay "would probably make a change in the organizational structure side of the business sooner or later." He didn't provide details but denied rumors that Chairman and CEO Andy Ludwick would step down.

Let's hope it isn't DOA

Digital will introduce a symmetrical multiprocessor addition to its AlphaStation lineup of workstations. Code-named Tombstone, the dual-processor-capable AlphaStation 650 isn't expected to debut until the second half of the year, according to a source close to the company. Expected to be priced at around $50,000, the systems will feature support for Digital's top-of-the-line 400-MHz Alpha chip. It will come with enhanced memory, storage and support for Digital's recently released high-end PowerStorm family of graphics adapters.

Toshiba denies Portege's demise

Despite rumors that Toshiba plans to pull the plug on its Portege ultraportable notebook, the company insists it is standing by the product. Jeffrey Frederichs, Toshiba's vice president of product marketing, said Portege will be updated in the coming months with the fastest processors and the latest technology. He said it will retain its weight of about 4.8 pounds and its $3,999 price tag.

The 5th Wave by Rich Tennant

"HONEY! OUR WEB BROWSER GOT OUT LAST NIGHT AND DUMPED THE TRASH ALL OVER MR. BELCHER'S HOME PAGE!"

A cluster of Notes?

That's what NetFrame Systems will offer this week when it announces a Notes MessageCluster, a NetFrame server preloaded with Lotus Notes 4.0. The Notes MessageCluster will support more than 1,500 Notes users on a single platform. Milpitas, Calif.-based NetFrame is aiming the preloaded server at organizations consolidating their Notes servers. Prices start at less than $90,000 for a system that supports up to 1,000 Notes users.

CD-OM

No corner of the world can remain untouched by the Information Age. Soon a most holy Tibetan Buddhist palace will be accessible through a multimedia catalog. Qinghua University in Beijing will capture images of the 17th-century Potala Palace, former headquarters of the dalai lamas, on CD-ROM.

Road warrior alert! According to the "Road Warrior Outpost" newsletter, a new, widely practiced hustle is afoot at airports nationwide, aimed at travelers with laptops. As a notebook-bearing passenger approaches a metal detector, two hustlers stand in front of the unsuspecting traveler. When the passenger places the laptop on the conveyor belt, one moves quickly through the detector while the other sets off the alarm and begins to slowly empty pockets. As confusion reigns, the first thief takes the portable and speeds off into the crowd. The newsletter warns travelers to avoid lines at the metal detector or to delay placing the laptop and other carry-on items on the belt until you are certain you will be next to pass through the detector. You now have fair warning. If you have a travel tip, or any other type of news tip, send it along to news editor Tish Keefe at (508) 820-8183 or via the Internet at patricia_keefe@cw.com.

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